BPN
BUTANE-PROPANE News

A CHILTON PUBLICATION

MAY 1961

THE FIRST 2 MILLION CUSTOMERS

HEADQUARTERS FOR L.P. GAS INFORMATION SINCE 1931

AT THE CONVENTION

Visit

COME UP TO THE IMPERIAL SUITE...

"THE WORLD OF WARREN"

GULF LP-Gas WARRENGAS

MEMBER NATIONAL LP-GAS ASSOCIATION

WARREN PETROLEUM CORPORATION

TULSA, OKLAHOMA

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However, wherever, you haul LP-Gas...
Hackney quality pays off through the years

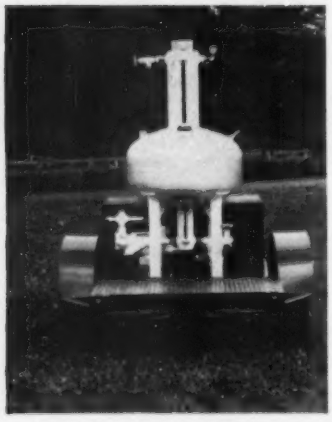
Hackney T-1 transports

Engineered to deliver more miles of service for every dollar you invest in LP-Gas transports. Capacities to meet your legal load limits. Optional equipment to suit your hauling strategy.

Hackney
MILWAUKEE

Hackney single-barrel trucks

Designed to speed local deliveries. Faster pumping, simplified plumbing. Water capacities of 2500 and 2800 gallons. Built with all latest safety features and complies with ICC MC-330.



Know How Your Meters Measure

Check your meters regularly with the Hackney liquid meter prover, and reduce your meter losses and *increase profits.* Ask for Bulletin MP-1.

Write for prices and specifications

Hackney twin-barrel trucks

Low center of gravity improves stability. Rear delivery saves time. Water capacities of 1770, 2170 and 2402 gallons. Built-in safety features and complies with ICC MC-330 specifications.

Hackney

Pressed Steel Tank Company

Manufacturer of Hackney Products

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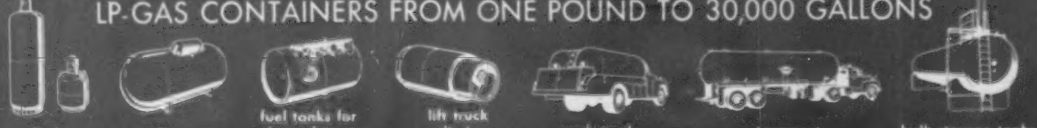
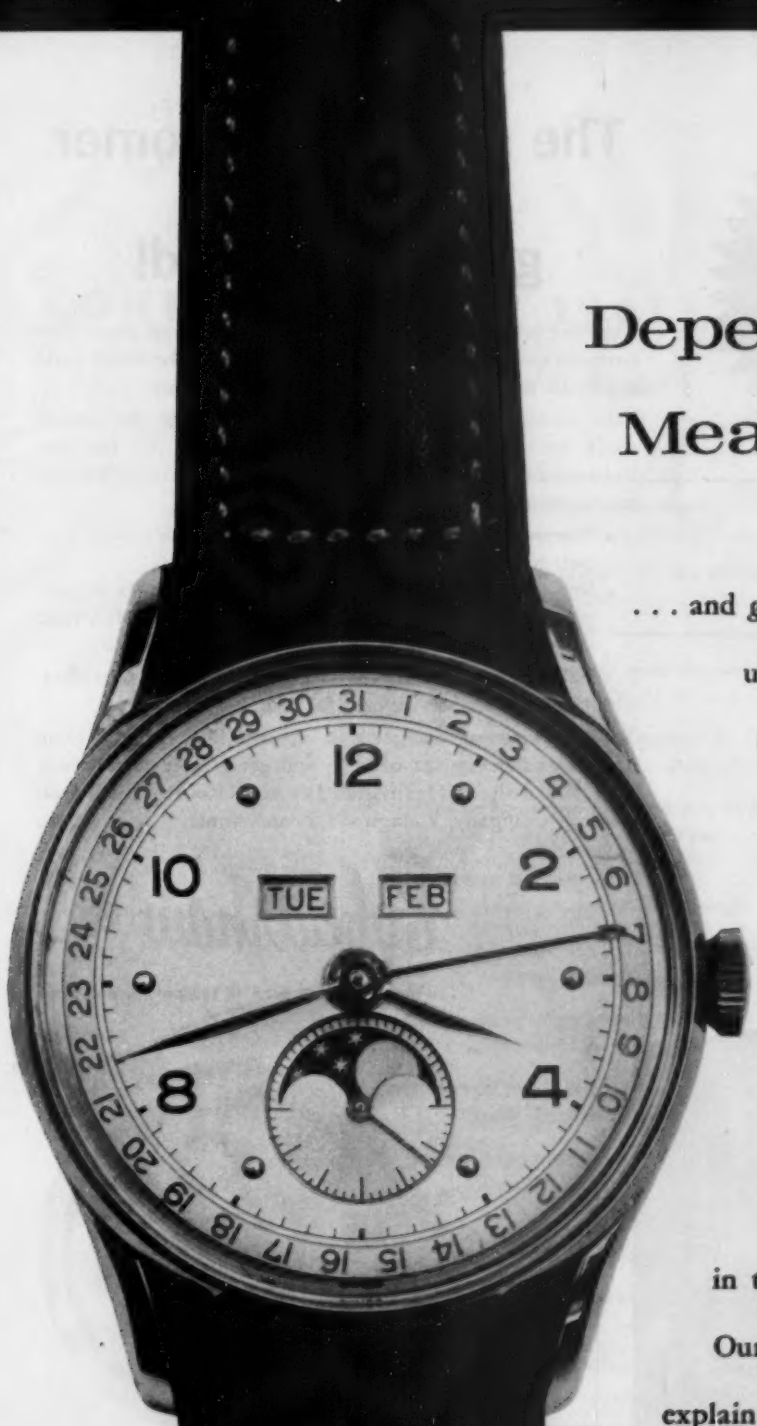




Dependability Means Time

. . . and *guaranteed delivery* depends upon the *time-consciousness* of your supplier.

Union Texas Natural's production, distribution and traffic departments work *by the watch*— not by the calendar —to assure UTN dealers of *product on time,* and in the quantities agreed upon. Our representative will gladly explain *why* . . . and *how!*

UTN

UNION TEXAS NATURAL GAS CORPORATION

ENTERPRISE BUILDING TULSA OKLAHOMA

More *profit*-ability from Robertshaw

The satisfied customer keeps your gas ranges sold!

Excessive service calls, returned merchandise and dissatisfied customers are the shortest route to lost profits. The direct route to greater profit-*ability* is to *keep the sale you've made!*

Your customer will stay sold only if the range she bought really does all the things you said it would . . . just like Robertshaw's FLAME MASTER and FLAME SET controls mean gas ranges do more than cook!

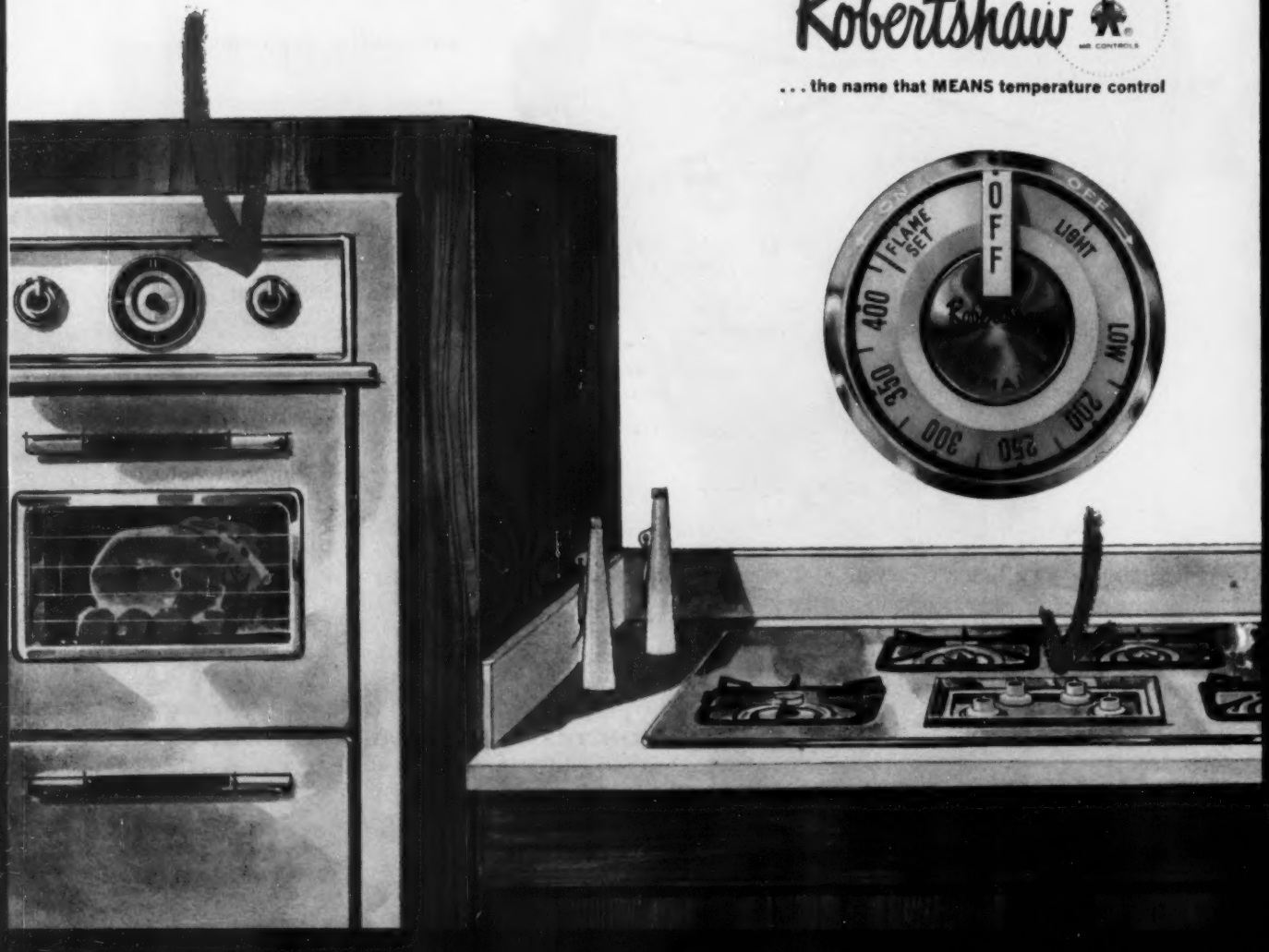
- "*burner-with-a-brain*" features . . . food won't burn . . . pots won't scorch
- low temperature oven features . . . warm plates at temperatures that "pamper" the finest china . . . safely hold cooked food for hours . . . quick-thaw frozen foods

. . . and the dependability that is built into every Robertshaw control means less service calls for you.

To keep your gas ranges sold, specify Robertshaw FLAME MASTER and FLAME SET controls and get greater profit-*ability* . . . Robertshaw Thermostat Division, Robertshaw-Fulton Controls Company, Youngwood, Pennsylvania. VMA 7694

Robertshaw

. . . the name that MEANS temperature control



CONTENTS • MAY 1961

BPN

Volume 23 - Number 5

Census of the Industry

The first 2 million customers 47
An interim report on BPN's Census of the Industry. **William W. Clark**

A preliminary report on the state of Michigan 52
The Wolverine State is the first to approach completion.

Features Digest

How to set up your own finance company 54
Are you selling $100,000 of appliances per year? **Robert H. Brown**

Gas Butano-Propano moves to "high ground" 59
Safe, efficient expansion south of the border. **Thelma Luxon**

How to beat the kilowatters to the pig pen 62
An Illinois dealer heats the pen at a quarter of the cost. **Arthur G. Norris**

A primer on hog heating 64
Planning the system for maximum efficiency.

How to purge a customer's tank 66
A customer service that eliminates costly service calls. **Harris A. Goodwin**

Quick dose of propane saves IKI Farms $180 an acre 77
A home-made flaming device did the trick.

Metered Systems 80
Benefits, financing, overcoming consumer resistance. **Marshall Cook**

School plans for laundry appliances 92
What utilities and manufacturers are doing. **Max Fuller**

LPG in Japan 115
Fourfold growth in four years.

A veterinarian's best friend is his LPG truck 117
It's a mobile lab and office. **J. Arthur Thompson**

Propane used in stationary engines is tax free 118
The Revenue Service clarifies a point.

Management Portfolio

Fork lift loads are a growing income, say dealers 120
One out of every four or five does a really outstanding job.

Power

The important differences between LPG and gasoline 99
Propane is a far simpler product. **Howard Reinhart**

Departments

Advertiser's Index	128	Classified	126
Association News	84	Information Desk	38
Behind the Scenes	4	New Products and Free Literature	106
Beyond the Mains	41	People	88
Calendar	128	The Industry in Action	14

May 1961

BPN BEHIND THE SCENES

A CHILTON PUBLICATION

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BPA NBP

Of People

This is a column about people . . . interesting people . . . experts, heroes, ladies, and weather forecasters who aren't.

Ladies first: The lady in the case is Thelma Luxon, whose article on Gas Butano-Propano graces the pages of this issue. It isn't often that a lady author makes the pages of BPN; it's even rarer when she does it with a descriptive piece on plant design. But Mrs. Luxon is the wife of our part-time technical editor, Lester Luxon, and she couldn't get very far away from engineering matters even if she tried. "After all," she says with a faint trace of a sigh, "I've been hearing them discussed for the past 31 years."

If friend husband gave her some help on the details, the writing style is still her own. He leaves that part of the job to her—as well he should. She took an English minor at Ohio State, and taught the subject for a while after graduation, so he's not about to dispute her qualifications. Smart husband.

This is not to say that engineers cannot write well. Marshall Cook's work (see the story on Metered Service) speaks for itself. Marshall, of course, is also a top-flight salesman, and one of the few acknowledged prophets of vapor metering.

Then there's Howard Reinhart of Zenith, who must certainly rank as a prophet of LPG carburetion. Howard is on his way toward being a senior statesman, though his energetic devotion to the cause would be more characteristic of a young, rising salesman. When he talks about "the *important* differences between gasoline and LPG" he speaks as an authority with a background of more than 30 years in working with engines. Early in his career he spent 10 years with the Ethyl Corp., and has been concerned with fuels, internal combustion engines and materials handling ever since. This last-named activity has significance for our industry, since propane is a favorite fuel for materials handling equipment. The work he has been able to carry on in pushing it for fork lifts has contributed much to the development of that load.

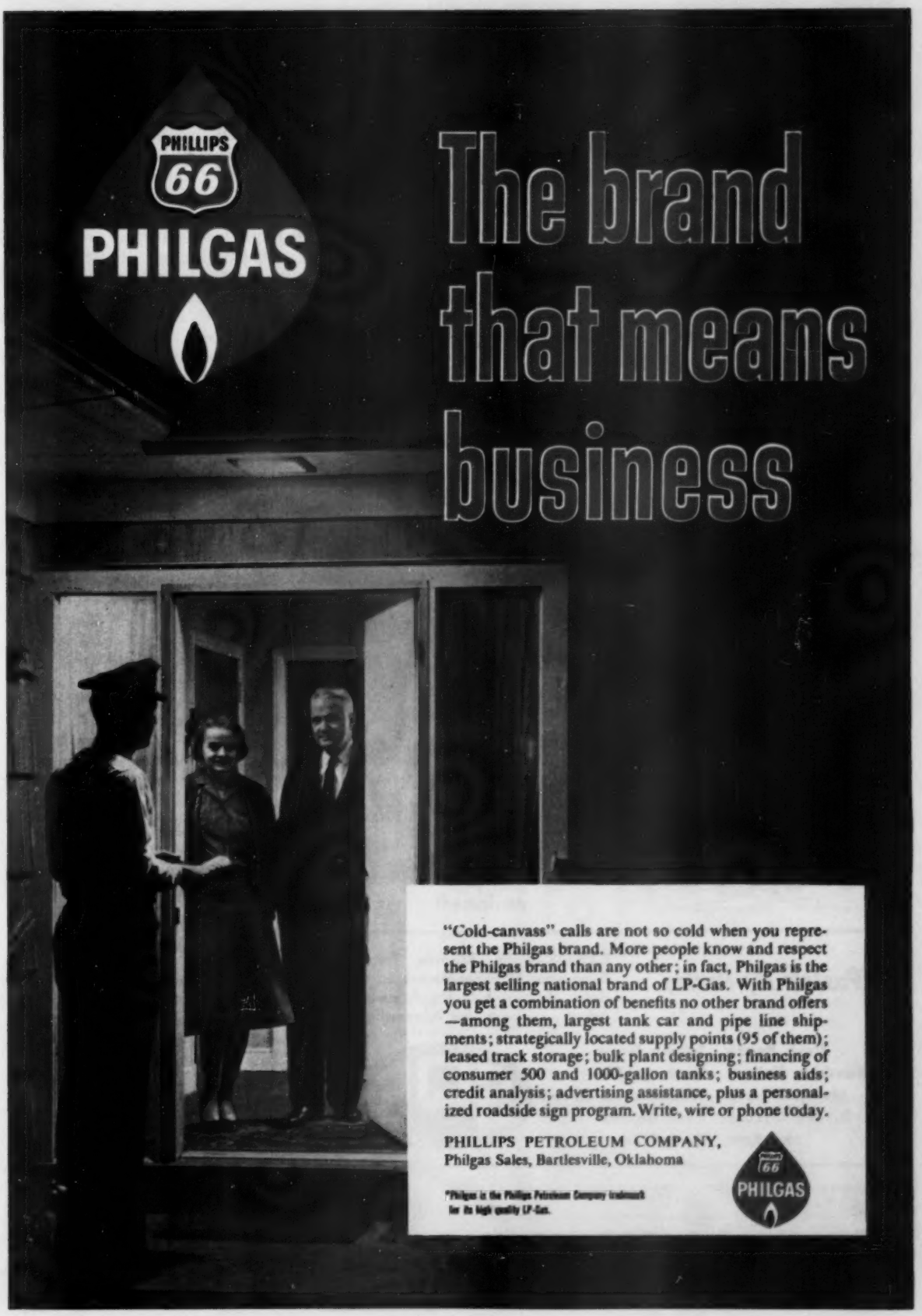
Another of the experts who contributed to this issue is Harris A. Goodwin, midwest regional manager of the Bastian-Blessing Co. Mr. Goodwin is an engineering graduate of Crane Technical College, and has had a long and outstanding career with B-B. He's also contributed much to the industry as a whole, has been extremely active in state association work, and is now treasurer of the Ancient Gassers.

H. A. Goodwin

(Parenthetically, it may seem presumptuous to tell you about these men, each of whom might best be introduced with the tired cliche. He Needs No Introduction. Obviously, they don't. But this is our way of paying a small measure of tribute to them for the great work they have done.)

And now, the hero . . . Ernie Bovee, driver for Norco Transportation Co., a subsidiary of California Liquid Gas Corp. Reports the company's house organ, the "Cal Gassette":

"While driving his truck loaded with 10,000 gallons of LP-Gas down the Hollywood Freeway, the left front set of dual wheels on Bovee's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66
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The brand that means business
"Cold-canvass" calls are not so cold when you represent the Philgas brand. More people know and respect the Philgas brand than any other; in fact, Philgas is the largest selling national brand of LP-Gas. With Philgas you get a combination of benefits no other brand offers —among them, largest tank car and pipe line shipments; strategically located supply points (95 of them); leased track storage; bulk plant designing; financing of consumer 500 and 1000-gallon tanks; business aids; credit analysis; advertising assistance, plus a personalized roadside sign program. Write, wire or phone today.
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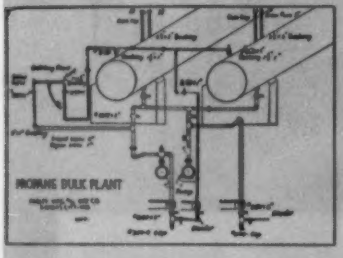
PHILGAS

Your One Supplier with everything in L. P. gas and Anhydrous Ammonia Equipment

"The Loadmaster" LPG Truck Tank

PASLEY-DESIGNED Truck Tanks (see above and right) were first to feature all controls from one location. All operation is from one point—rear compartment.



BULK PLANTS Pasley LPG and Ammonia type installations — a turnkey job or engineering for your own installation. Write, wire or call.

Also a complete line of accessory equipment.

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Behind the Scenes

trailer snapped off at the axle housing at approximately 10:00 A.M. Bovee immediately stopped his truck and ran back to break the coupling linking the truck to the overturned trailer. After releasing the trailer, Bovee raced back to his truck cab and drove the unit with 4,500 gallons of LPG up the Freeway to a safe distance from the ill-fated trailer and returned to warn motorists to prevent a collision with the trailer. Traffic was snarled over a wide area for approximately five hours. Firemen stood by while the trailer was returned to an upright position and normal freeway traffic resumed.

"Bovee's actions were so commendable that two major motor carriers in the Los Angeles area telephoned the head of our transportation department in Sacramento to convey their congratulations for the way Bovee handled himself during the time of a potential crisis."

And, finally, the weather forecasters who aren't: John Storm, W. R. Raney, P. E. Gray, and Charles L. Snow. All are salesmen and sales executives with Sinclair Oil & Gas Co. Put them all together and you have a pretty dreary weather forecast: "Gray, Raney, Snow Storm." Did we say dreary? In this business, to the contrary: bad weather news is often good business news. Last winter, in particular, they were good men to have around.

BACK TALK

Film on LPG fires

Greensburg, Pa.

I am looking for some literature or a film on fighting LPG fires. Could you give me any information on this matter, such as where I may locate it and the cost.

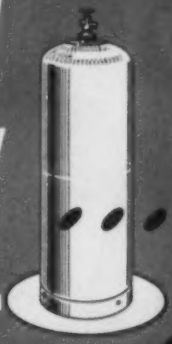
Our local fire departments are very much interested in this, and as a dealer, we want to help them all we can.

Any help you can pass along will be greatly appreciated.

MARTIN W. ALTMAN
Goss Gas, Inc.

There is a film available on fighting LPG fires. I would suggest you contact the LPGA for further information about it.

NEW EASY LEASE PLAN



...at only 70¢* per quarter per 100 lb. cylinder

Leasing now extended up to 200, 300 and 420 lb. I.C.C. cylinder sizes

Terms of lease can include base stands and hoods

can make more profit for YOU!

* Rates slightly higher in Canada

Dealer A and Dealer B have 800 customers each,
but Dealer B grosses $1730 more each year through leasing.
Dealer B operates as an independent businessman.
And you can too!
Quarterly payment now makes leasing universally available
. . . don't wait!

Simple Cost Comparison Explains Leasing Advantage:

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another example of LEADERSHIP PROFIT GROWTH THE WEATHERHEAD WAY

when the heat's on

be sure it's HYDROTHERM

When the job's got to be right . . . at the right price . . . remember Hydrotherm!

Gas-fired Hydrotherms are available in eleven sizes from 50,000 to 300,000 BTU/Hr input . . . a right size for every residential job. Versatile Hydrotherms also provide volume water heating for apartments, motels, restaurants, etc.

Also available: packaged Hydrotherms, completely factory assembled with all hydronic accessories for even faster installation.

Unique engineering of Hydrotherm's cast iron horizontal sections means fuel savings and guaranteed (25 years) satisfaction.

Write for bulletin #HY-F100 and all the facts.

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Backtalk

BPN some time ago published an article entitled "How to handle L. P. gas emergencies." We had this made up into a reprint. Some are still available at 15 cents each.

A "crank" on safety?

Ft. Lauderdale, Fla.

Many times during my years of servicing gas appliances, I have refused to turn on gas for a customer when I discovered an unsafe piping installation. Therefore, I have been classified as a "crank" or a perfectionist just because I realize I have the public's life, my employer's investment and my position at stake.

I am sending you this news item, which I feel will set many employers and employees in the LPG industry on their toes.

GEORGE PIERCE

Following are excerpts from the news item:

"Two plumbers were charged yesterday with negligence in connection with a gas explosion which wrecked a department store in October, killing 10 persons and injuring nearly 100 . . . Justice Angus W. MacMillan handed down the ruling under a little-used article of the criminal code dealing with negligent handling of explosives, in this case natural gas. Ft. Lauderdale News, March 22, 1961."

High Plains says "Thanks"

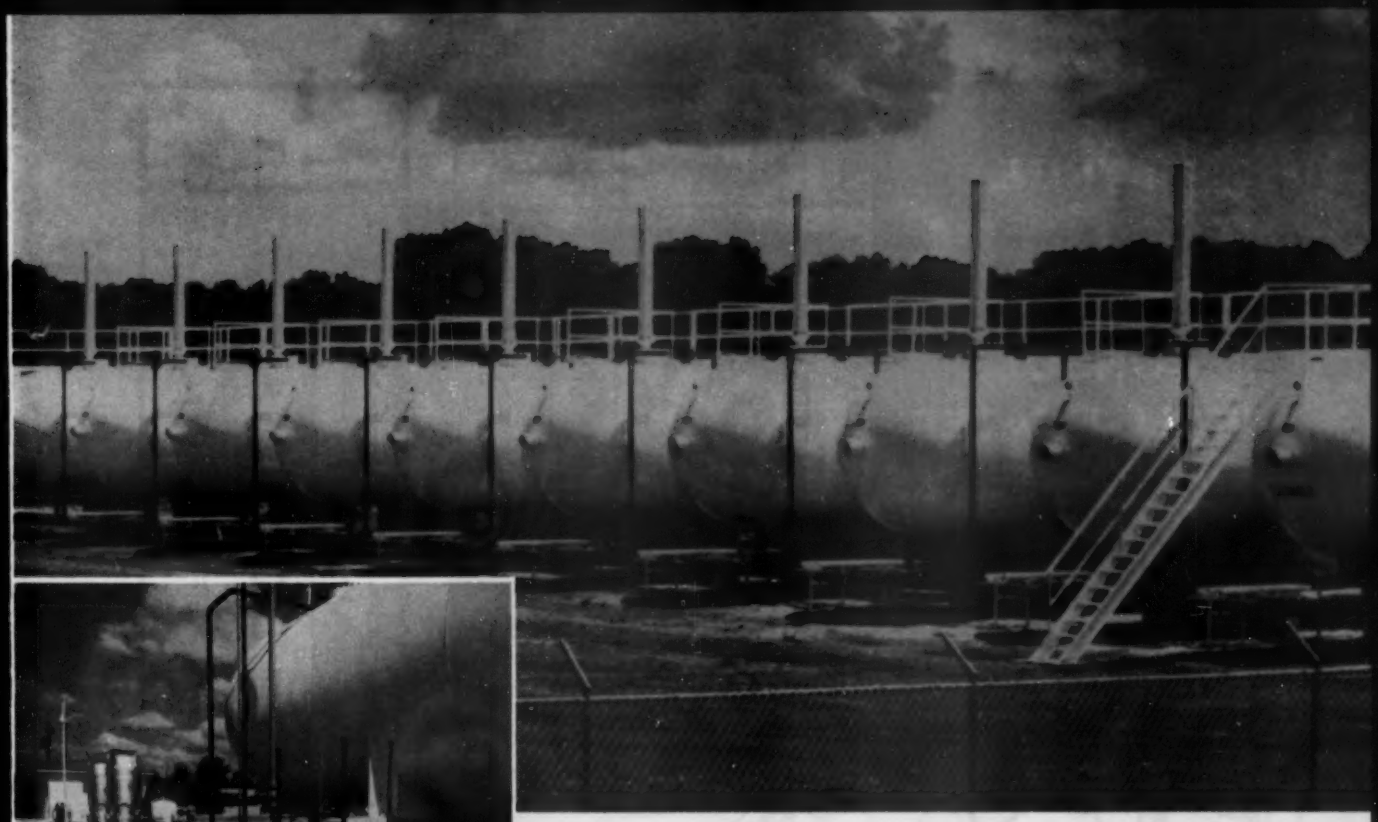
Plainview, Texas

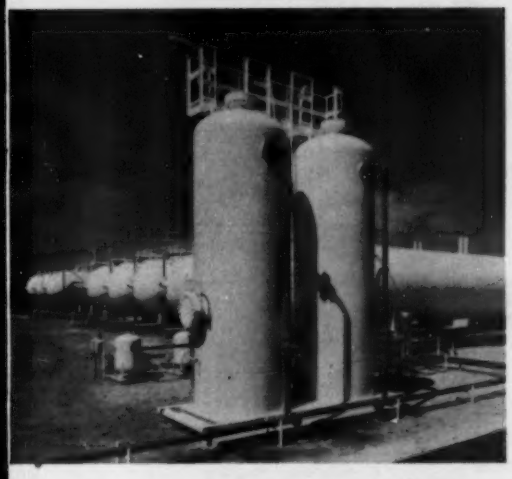
The Board of Trustees of the High Plains Research Foundation, at their meeting March 15, expressed their appreciation of the support being given agriculture in the High Plains through the publications of the research results.

It has been the desire of the Board of Trustees and the supporters of this "free enterprise" agricultural research foundation that all engaged in farming and agricultural business should share in the economic value that research findings by the Foundation make possible.

Through your use of the news releases and reports made by the Foundation, you have assisted materially in this endeavor. Thank you again.

FRANK MOORE
President





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A TRUE

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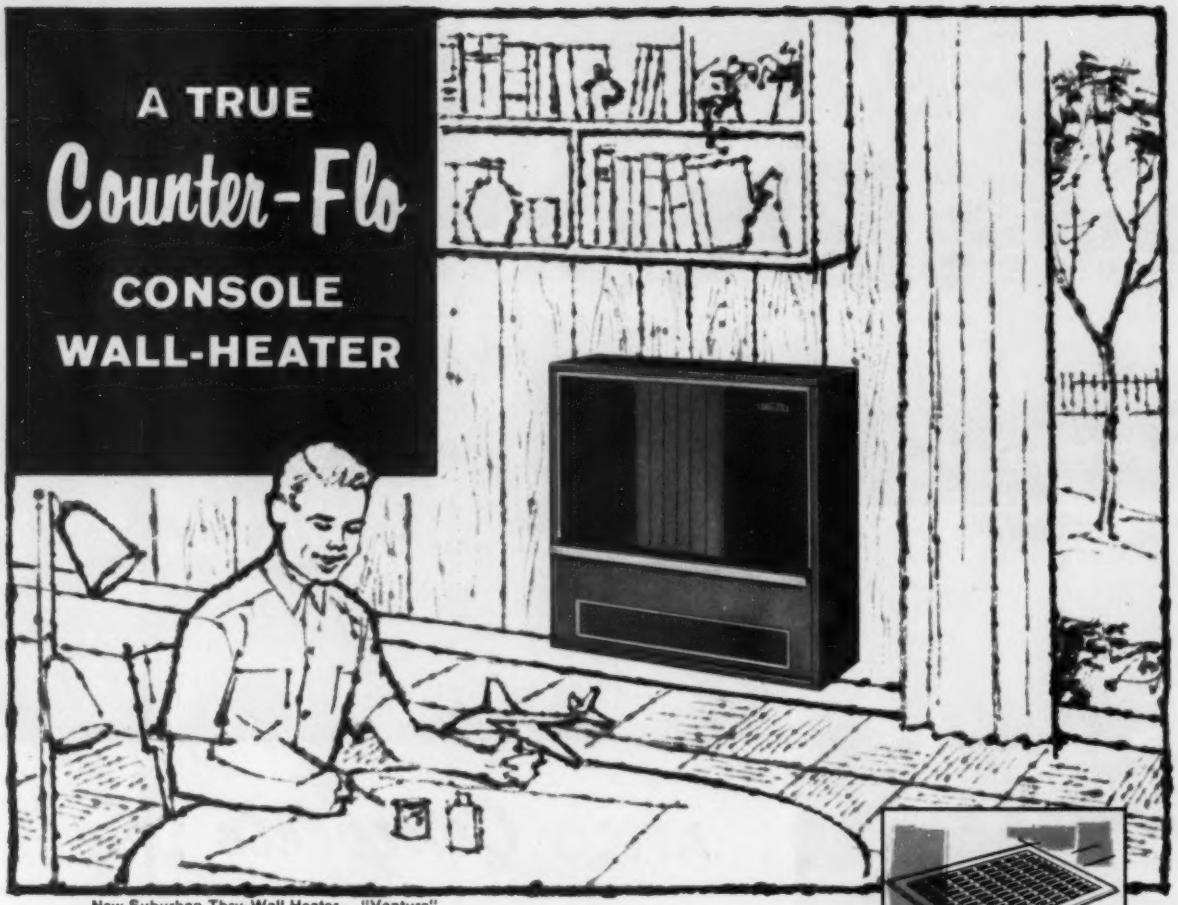
CONSOLE WALL-HEATER



New Suburban Thru-Wall Heater — "Ventura"

NEW VENTURA THRU-WALL HEATER

Ideal for Home Remodeling!

- Most compact unit on the market
- A-19 Glascoat-sealed combustion chamber
- 20-year guarantee
- Installs flush or recessed (only 5" into room).
- One man can install from inside the house, quickly and accurately with fool-proof, exact-size installation templet
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- 100% safe—fully automatic
- Counter-Flo or gravity models

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Send For Full-Line Catalog. You get a selling story and a selling price with Suburban gas appliances—more of what it takes to get more jobs. Mail the coupon today—get the whole Suburban story.

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America's Finest Heating & Cooking Appliances

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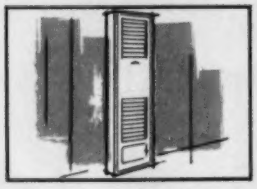
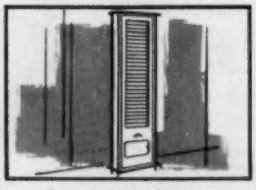
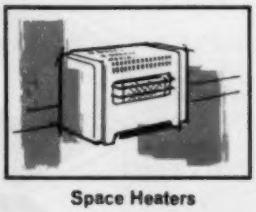


Counter-Flo Wall Heaters



Gravity Wall Heaters



Space Heaters

Samuel Stamping & Enameling Co., Dep't. BPN
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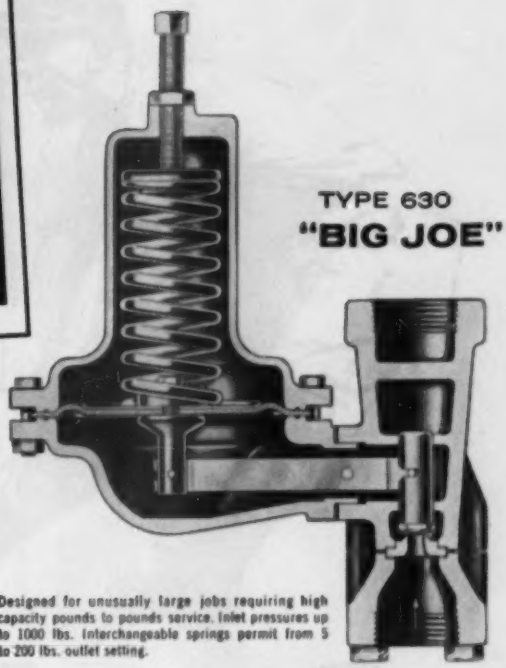
Please send full-line catalog and complete information.

NAME_____ COMPANY_____

ADDRESS_____ CITY_____ STATE_____

call on BIG JOE and his friends for those

BIG JOBS



TYPE 630
"BIG JOE"

Designed for unusually large jobs requiring high capacity pounds to pounds service. Inlet pressures up to 1000 lbs. Interchangeable springs permit from 5 to 200 lbs. outlet setting.

REGULATORS

SPECIFICALLY DESIGNED FOR

COMMERCIAL, INDUSTRIAL
and
STAND-BY SERVICE

LPG men in the know depend on Little Joe for their cylinder and small tank controls. When it comes to those big jobs that require regulation of anywhere from a few feet per hour up to 100,000 c.f.h. and more ... smart operators call on BIG JOE and his friends.

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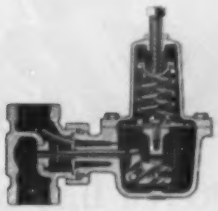
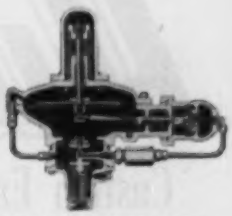
Bulletins describing FISHER heavy duty LPG equipment are yours for the asking.

TYPE 620



Designed especially for 1st stage reduction in large 2 stage installations. Capacity 2500 cubic feet. (6,250,000 BTU per hour.) Normal reduced pressure 15 psi, interchangeable springs for settings up to 60 psi.

TYPE 99

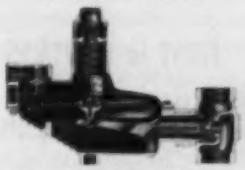


Designed to handle almost any pressure reduction job from a few feet per hour up to 100,000 c.f.h. Inlet pressures to 250 lbs. Available with outlet pressure settings from inches of w.c. to 100 lbs.

TYPES 95H & 95L

Designed to reduce full tank pressures down to intermediate pressures in pounds. Operates on either gas or liquid propane vaporizers, crop dryers and other large volume applications.

SERIES 8200



Designed for commercial and industrial applications where flow rates change rapidly. High capacity, light weight regulator series handles inlet pressures from ½ to 100 psi. Outlet pressure range is 3½" W.C. to 3¼ psi. Incorporates shock protection and safety devices.

IF IT FLOWS THROUGH PIPE ANYWHERE IN THE WORLD ... CHANCES ARE IT'S CONTROLLED BY

FISHER® Controls

FISHER GOVERNOR COMPANY Marshalltown, Iowa

Handle the HOT one...

Quaker Full Line

Custom Engineered GAS Space and Wall Home Heaters

FIRST in BEAUTY — Sleek lines — home furniture styling

FIRST in COMFORT — Wall to Wall — object to object — overall warmth with balanced combination of radiant and forced air heating.

FIRST in FEATURES — Counterflow space heaters, counterflow wall heaters — directional heat — temp-air-trol.

FIRST in VALUE — Built-in quality equal to any and more at our price.

You bet the Quaker line is "the hot one". The one you want to sell – see the complete line of space and wall home heaters at the LPGA Show – Chicago, or phone, wire or write today.

HEIL-QUAKER Corporation

647 THOMPSON LANE ● NASHVILLE, TENNESSEE

There's No Business Like Your Business

We, at Sinclair, know there is no business like your business. That's why the Sinclair TRUFLAME LP-Gas program is designed especially to meet your needs.

As a Sinclair TRUFLAME LP-Gas distributor you are as independent as if you were buying from "Tom, Dick or Harry." But you have an advantage over the average marketer because you have access to practical help with engineering, marketing and advertising, plus a nationally respected trade name you can display proudly beside your own.

Join the scores of other Sinclair TRUFLAME LP-Gas distributors who are profiting from a connection that helps, but does not control!

Sinclair Truflame LP-GAS

Sinclair

SINCLAIR OIL & GAS COMPANY

LIQUEFIED PETROLEUM GAS SALES DEPARTMENT

SINCLAIR OIL BUILDING • PHONE LU 4-0411 • TULSA 2, OKLAHOMA

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MEMBER NATIONAL LP-GAS COUNCIL

CAMP HILL, PA. • MITCHELL, SOUTH DAKOTA • ARLINGTON HEIGHTS, ILL. • ST. JOSEPH, MICHIGAN • MONTGOMERY, ALABAMA

BPN NEWS PARADE

The industry in action

ASSOCIATIONS

Expansion keys LPGA convention

"Can smaller marketers expand via the planned merchandising route as effectively as the giants?"

Both large and small operators will be represented when this intriguing question is asked in a session at the 30th annual LPGA convention in Chicago, April 30-May 3.

Allan A. Rowan-Legg of Superior Propane Ltd., Toronto, Ont., will speak for the large marketers, and R. S. Steele, Steele Rulane Service, Inc., Hickory, N. C., will speak for the small marketers.

The schedule also includes a discussion of recent advances in LPG specifications and tests, and a question-answer session aimed at specialized departments of the marketing business.

Other speakers and topics are: F. Kenneth Worland, Rockford (Ill.) Propane Co., accounting; K. L. Taff, Taff's Gas Service, Inc., Charlestown, Ind., load building; F. N. Havens, Uregas Service, Inc., Moberly, Mo., sales promotion; R. C. Harris, Suburban Gas, Inc., Pomona, Calif., plant operations; and Edmund D. Taylor, Gas, Inc., Lithonia, Ga., management.

Prizes during the convention will be awarded: "Distinguished Service Life Membership," Seley award of $1000, a gold medal, the crowning of Miss International L. P. Gas, and the first national safety award in the LPG industry.

The trade show will open the first day.

Hayes joins L. P. Gas Council

Jim Hayes recently joined the National L. P. Gas Council as a midwest field representative. He was formerly the public relations director for the Michigan department of the American Legion, and a P. R. representative for the American Institute of Laundering.

Greater coordination needed

Leaders of the LPG industry recommended greater coordination between the National L. P. Gas Council and the LPGA at an April 10 meeting in Ft. Lauderdale, Fla.

Purpose of the session was to discuss the responsibilities and relationship between all segments of the LPG industry, the council and the LPGA.

The group recommended that directors of the council and LPGA establish a 16-man joint committee to study methods of greater coordination. The proposed committee would be composed of eight representatives from each organization.

The proposal, approved by the council board, will be submitted to the LPGA board at the Chicago convention.

Diehl receives Hanlon Award

John C. Diehl received the Hanlon Award at the recent NGAA convention in Dallas.

The award is the highest honor in the gas processing industry. Diehl is retired chairman of the board of American Meter Co., Erie, Pa.

New officers were also elected at the convention: Max R. Lents, Reef Corp., Houston, president; G. W. McCullough, Phillips Petroleum; K. G. Pearce, Tenneco Oil, Houston; Albert Taylor, Amerada Petroleum, Houston; C. T. Wells, Jr., Goliad Corp., Houston; vice-presidents.

THE SALES SCENE

Detroit fights back with charts

The Detroit Hydronic Heating & Cooling Council reports special plans to combat the effects of electric resistance heating promotion by utilities in that city.

The first step is an information campaign designed to show the general public a true comparison of fuel costs, based upon actual rates.

The fuel comparsions are illustrated in a chart developed by the council. The chart can be adapted for use in any city.

Thousands of charts were distributed with telling effect to visitors at the 70-ft-long cooperative exhibit set up by the Detroit Council at the recent Detroit Home and Builder Show.

Water heaters can "disappear"

J. C. Griffiths, research engineer of AGA's laboratories, told the AGA research and utilization conference last month how water heaters can be made to "disappear."

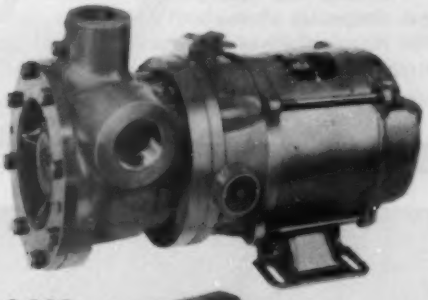
He explained that it involves installing a divided water heater over and under a built-in-oven. The disappearance is accomplished by making the heater "non-integral," separating the heating part from the water storage tank.

In many homes, the use of built-in appliances has become increasingly popular as living spaces occupy more of floor areas which were formerly

NOW GREATER VALUE THAN EVER BEFORE!

CORKEN CORO-FLO BOTTLE FILLING AND MOTOR FUELING PUMPS

powered by new-type motors, fan cooled for continuous service



C-9C or C-10C

C-12C

C-14C

The new ¾ and 1½ HP sizes have capacitor type single phase motors; the 3 HP size has the 3-phase type. All are fitted with drain plugs to automatically remove any accumulated moisture. Virtually maintenance free—no brushes to wear out—and the bearings never require greasing.

You have a choice of four CORO-FLO models to meet practically any container filling need: from the ¾ HP Model C-9C which delivers up to 85 PSI differential for those hard to fill fork lift cylinders, to the 3 HP C-14C which will handle 100# cylinders at 60 to 70 an hour on a 4-spot manifold with ease, and delivers up to 125 PSI differential if necessary.

The C-12C, with its new continuous duty motor, takes on a new importance, because now it's the ideal pump for a 2-spot bottle filling manifold as well as motor fueling services.

And remember, CORKEN CORO-FLO PUMPS ARE LONG, LONG LASTING, because of the floating impeller design in the tough INCO DUCTILE IRON CASE There's no metal-to-metal contact, and that means there's no noise. And where there's no noise —there's no wear—Nowhere!

WRITE FOR BULLETIN VF 100-A

CORKEN'S INCORPORATED

P.O. BOX 1062 • PH. CE 5-5517
OKLAHOMA CITY, OKLA., U.S.A.

The industry in action

used only for appliances. With the separation achieved, the vessel could be stored in a number of places in the home, giving more floor space.

The divided heater has been successfully tested but has not yet been produced commercially.

Gas air-cooling sales to be biggest

The gas industry has mapped the biggest air-conditioning sales campaign in its history for 1961. Its aim: To increase sales 70 per cent.

Planning this emphasis on air conditioning, 75 gas companies throughout the nation recently sent 260 representatives to a series of meetings held in Birmingham, Ala., Dallas, Chicago and Boston, sponsored by the AGA.

SUPPLY & TRANSPORTATION

One of series of chambers connected by network of tunnels in Continental Oil Co.'s (Houston) $1,275,000 new underground propane storage cavern at Ponca City, Okla. The cavern, recently completed, is inspected by a group of LPG distributors before the start of sealing-off operations.
The 20 ft high chambers have a total capacity of approximately 300,000 bbl.

A very close relationship

"What we need in this industry is a very close relationship between producers, transporters, and marketers, in order that the consumers' cost of our fuel in all sections of the country is competitive with all alternate fuels which are available."

That incisive analysis of the LPG industry was made by LPGA President Rudy Munzer in a mid-March address before the NGAA convention in Dallas. Munzer, who is also president of Petrolane Gas Service Inc. (Long Beach, Calif.), minced no words in getting to "one of our major problems:"

"The supply and potential demand for LPG are not geographically compatible for maximum development of our market. The only way the geographical incompatibility can be overcome is through economic transportation, which, in most cases, boils down to LPG pipelines. We have seen recently in the United States a greater realization of this need with the construction of pipelines such as Mid-America and the contemplated pipeline by certain of the producing companies in the Southeastern section of the United States. It is incongruous to me, however, that the freight rates on some of these new and proposed pipelines are 50 per cent higher than the rates on similar pipelines used for other petroleum products. This . . . is restrictive, and offers an obstacle in the development of the LPG potential. I certainly recognize that pipeline distribution is a great step forward, but I think there must be further effort in adjusting these rates to levels equal to transportation costs of other petroleum products."

Munzer also called for reduced costs in two marketer activities, distribution and development. On distribution:

"It is certainly necessary that the marketer adjust his distribution costs to realistic levels commensurate with other pertoleum products. If he is to be successful in his efforts, of course, it is necessary that these margins reflect certain higher operating and investment costs."

And on development:

"There is much more marketing, servicing, and selling effort in this LPG industry than there is in other petroleum fields where a great deal of pioneering work was accomplished many years ago."

Munzer called for "strenuous selling efforts" on the part of marketers. The biggest current potential, he said, is in house heating. He estimated that six million LPG customers using the fuel for other purposes could also use it for heating. And an individual customer's annual usage in the colder climates would reach as high as 1500 gal. per year. However, the marketer does "need assistance from all other segments of the industry," Munzer stressed. As an example, he called for "a great deal more research and the development of an LPG engine, which will maximize the fine characteristic of our fuel" and for "a fuel which is of high specification and uniformity (for) these engines."

Gas liquids hit all-time high

Natural gas reserves in the United States have reached an all-time high of 263.7 trillion cu ft despite another record-breaking year of production. In a report released jointly with A.P.I., AGA dis-

Nor-Tex

PRODUCTS COMPANY

National Sales Agents For

NORTH TEXAS TANK CO.

P. O. Box 1219 • Denton, Texas

Phone 382-5416

Nor-Tex "SAFETY LINERS"

Not a single surplus ounce of non-working weight "goes along for the ride" in a Nor-Tex skillfully engineered Transport. Today you can easily HAUL MORE GAS . . . *more revenue-making payload* . . . and LESS STEEL than ever before. Every pound of dead weight has been eliminated to immediately earn more money . . . to earn more money year after year. Each pound of weight saved in a streamlined Nor-Tex Transport of T-1 or A-202B steel represents hundreds of dollars in revenue.

Each unit is built to latest code ICC-MC330 requirements. Even the fittings are recessed for extra safety. The men who build them are all veterans of many years experience in actual LP Gas operations and this, probably, is why Nor-Tex Transports have become in every way the most popular and dependable units with users everywhere. Write, wire or phone collect today. Interested attention, experienced assistance and helpful suggestions are always yours for the asking.

RELIEF VALVES — Nor-Tex safety-minded engineers, complying with code requirements, have taken every accident precaution. There is never any danger of hooking, snapping or shearing the relief valves on a Nor-Tex Transport. Each valve is carefully recessed for greatest safety.

BONUS SAVING

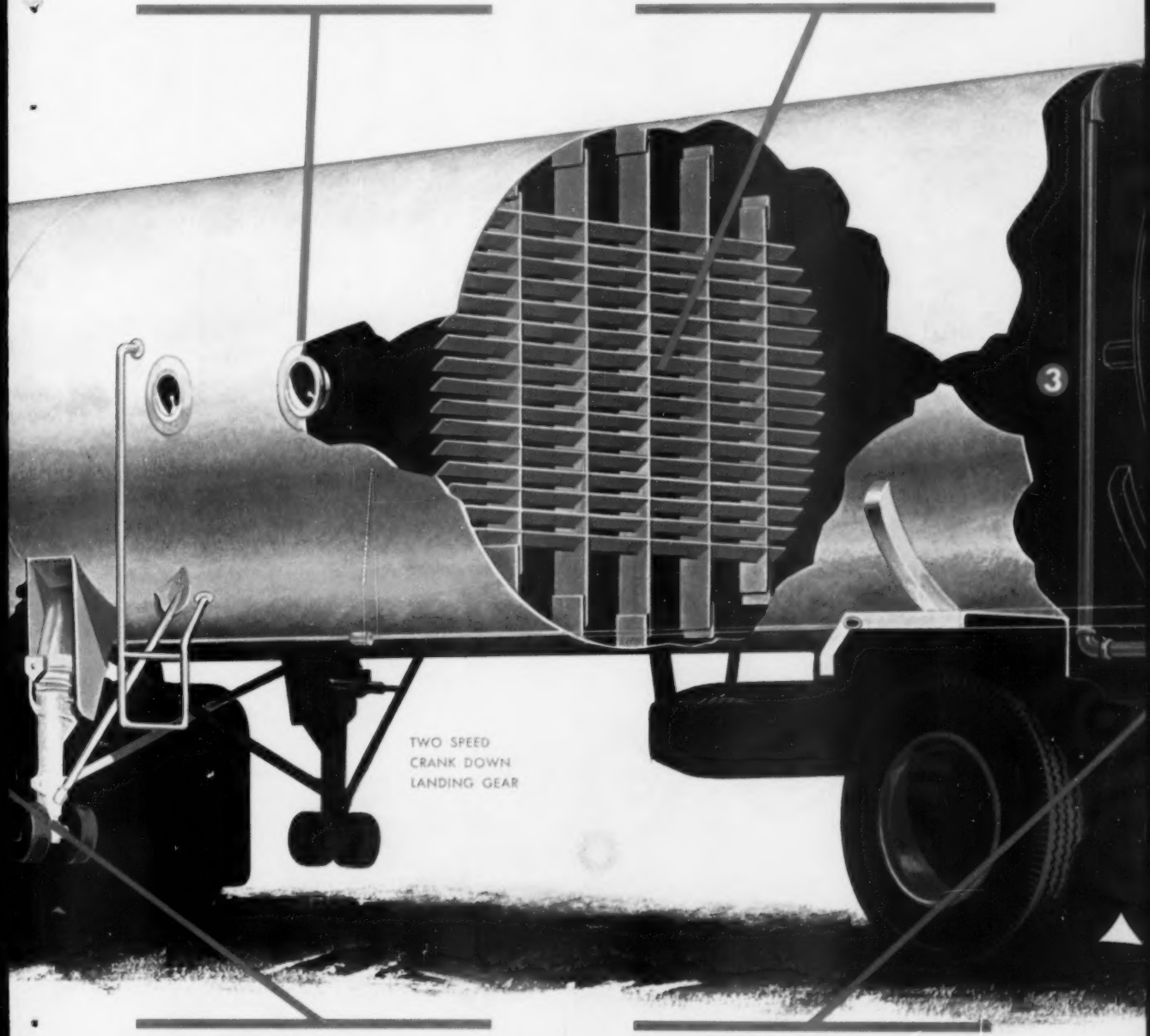
As authorized new truck distributors Nor-Tex can save you hundreds of dollars on Internationals . . . Chevrolets . . . Fords . . . Diamond T and GMC's. Order any unit you need. You can't beat a Nor-Tex deal for all-around value.

Built to the Greater Safety Demands of this Growing Industry

HAUL MORE GAS

GAGES — Whether the outage, pressure and rotary gages are located on the off drivers side or to the convenience of the customer, they are always recessed, making each Nor-Tex Transport the safest unit on the highway today. Nothing has been spared to give *greater value* with *greater safety*.

ALUMINUM BAFFLES — Man, what you can earn alone with the 800 "extra" pounds of profitable payload you'll be able to haul each trip made possible by these non-corrosive, lightweight, aluminum baffles . . . one of the exclusive and most desirable features in a Nor-Tex Transport.



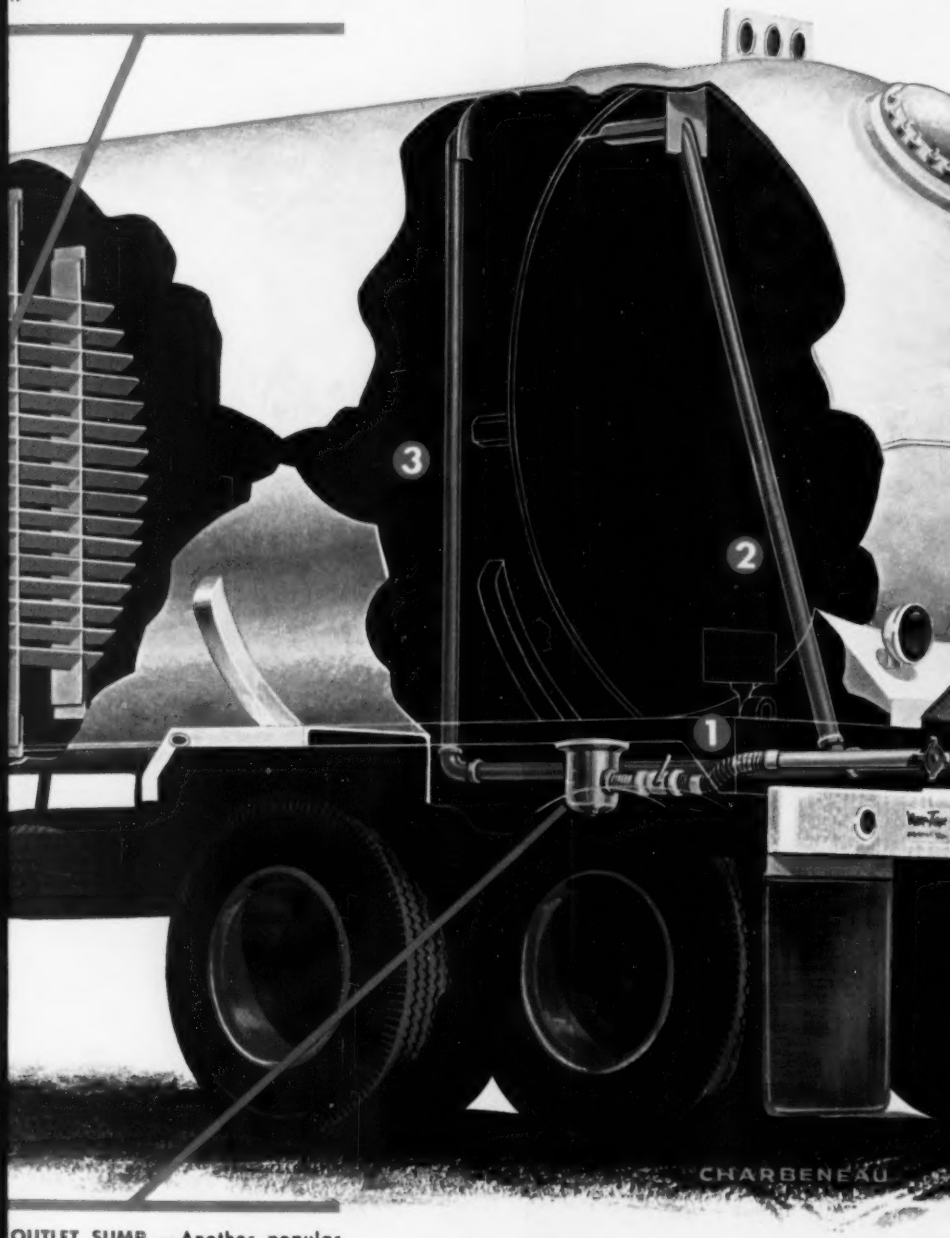
ADJUSTABLE FIFTH WHEEL — You can easily carry a maximum payload, properly balanced, with this adjustable Nor-Tex fifth wheel plate. It gives a smoother ride empty or loaded and it is a quick, easy and economical way to balance the weight distribution of your payload. Another Nor-Tex *built-to-your-benefit* feature.

LIQUID OUTLET SUMP — Another popular feature of a Nor-Tex Transport is the swirlproof sump with excess flow valve and convenient drain plug. With this sump you can safely and completely unload every drop of gas. No more hauling gas you were unable to unload back to the refinery or loading rack.

. . . LESS STEEL . . .

Only Nor-Tex En
Lifetime-Earnin

IUM BAFFLES — Man, what you can ne with the 800 "extra" pounds of e payload you'll be able to haul each e possible by these non-corrosive, light- aluminum baffles . . . one of the exclu- most desirable features in a Nor-Tex t.



OUTLET SUMP — Another popular f a Nor-Tex Transport is the swirlproof excess flow valve and convenient drain th this sump you can safely and com- nload every drop of gas. No more haul- ou were unable to unload back to the r loading rack.

EEL . . . Than Ev

-Tex Engineering Skills Give You All These
e-Earning... Profit-Producing Advantages

CONVENIENT PLUMBING — Users praise the convenient remote loading, unloading and vapor line valve controls housed in this easily accessible rear location. Simple coupling is quickly accomplished in complete safety. Note the faster loading, pressure reducing spray fill.

1. **Flexible** liquid and vapor lines are impact resistant in case of being hit from rear.
2. **Spray-fill loading**
3. **Vapor line**

Nor-Tex LOW COST LPG Financing

A PLAN TO MEET EVERY NEED

Ever Before!

Nor-Tex . . . SOUND INVESTMENT

MAXIMUM BULK STORAGE

What better way to gain and hold customer confidence than to have *Maximum LP Gas Storage* for any emergency. Such *customer protection* and *business insurance* is a small cost since a steel storage tank is worth just as much or more today as it was ten years ago . . . it maintains its value. What are your present and future storage needs? With the gratifying evidence of continued healthy domestic and commercial gains in the industry which has consistently shown increases over so many months it might be well to consider increasing bulk storage at this time. We'll appreciate your call.

HAUL BIGGER PAYLOADS

In Nor-Tex Lightweight Bobtails

Bulk plant operators everywhere praise the sleek, LIGHT-WEIGHT, streamlined twin or single barrel Nor-Tex LPG Delivery Units. Nor-Tex pioneered ALUMINUM SKIRTING and CABINETS, and practical engineering designs have reduced overall weight. 3000 WG units and over, on cab-over or cab-forward trucks, are still within the 18,000-lb. axle limit. Custom designed Nor-Tex high-flow plumbing delivers "extra" gallons faster. For day in, day out efficiency, durability, payload, fast loading, high rated delivery, perfect balance and appearance, Nor-Tex delivery equipment just can't be beat!

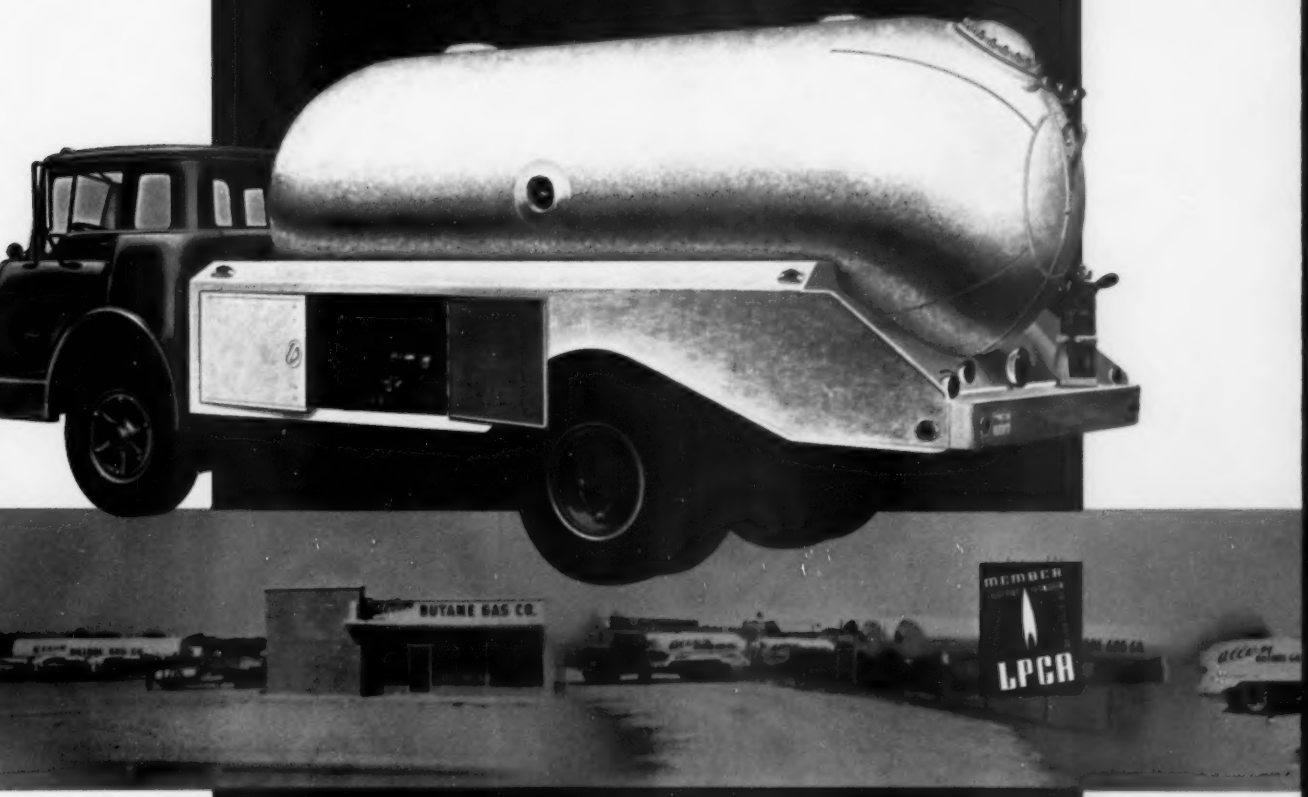
Make Every Trip Pay With
ROUTE-RATED BOBTAILS

Four simple RULES for LP-Gas Delivery PROFIT today: (1) Deliver EXTRA Gallons Each Trip, (2) Work FEWER Hours, (3) Drive LESS Miles, (4) Eliminate COSTLY Overtime Expense. Many dealers are already doing this. You, too, can do the same with new Nor-Tex lightweight units. Nor-Tex "ROUTE-RATED" units are built to fit your route's need, based on the length of route, the terrain covered, convenience of cabinet location, and number of trips required on peak loads. Evaluate each route you cover today . . . write, wire or phone us collect . . . learn for yourself why Nor-Tex Route-Rating service has grown so popular with bulk plant operators.

4 MODELS *Twins or Single Barrels* 8 STYLES

★ STANDARD ★ PAYLOAD
★ CUSTOM ★ DE LUXE

Complete With Aluminum Skirting and Cabinets



BALANCE YOUR LOAD THE NOR-TEX WAY

. . . Finance The Balance

closed that new reserve discoveries were the third highest on record, 6.6 trillion cu ft.

Discoveries of natural gas liquids during 1960 were the second highest on record. The 121.5 million bbl total was exceeded only in 1956 when 128.5 million was found. Reserves of gas liquids total 6.8 billion bbl, an increase of 294 million over 1959.

Officers elected for Dixie Pipeline

Construction of the 1100-mile Dixie pipeline will be started at once, as announced at the election meeting held April 6 in Tulsa. The company expects the line to begin delivery of propane to the Southeast this coming winter.

Officers elected are: F. E. Neptune, president; R. P. Lennart and E. A. Slade, vice presidents; C. J. Senger, treasurer and R. A. McIntyre, secretary.

Barging to Atlanta under study

U. S. Army Engineers, at the request of the state of Georgia, are surveying the Chattahoochee River to determine the feasibility of barging LPG all the way up to the Atlanta area. It is now being barged up the river as far as Bainbridge, Ga. . . . Warren Petroleum Corp. of Tulsa recently opened a new sales office in Minneapolis, Minn. William Gullege, former head of the Los Angeles office, will be the manager. . . . Operations have begun at Phillips Petroleum Co.'s new X-Ray natural gasoline plant in Erath, Texas. The plant will process 25 million cu ft of gas and produce about 50,000 gal of natural gas liquids consisting of propane, butane, and natural gasoline. . . . Continental Oil Co., Houston, has completed a $930,000 absorption-refrigeration type natural gasoline plant, two miles south of Medford, Okla. The plant has a processing capacity of 30 million cu ft of gas daily and will also produce propane and butane. . . . Northern Gas Products Co., Omaha, recently announced that Phillips Petroleum Co. will join it in marketing propane from six new pipeline terminals at: Plattsmouth, Neb.; Des Moines, Mason City, Iowa City, Iowa; Rosemount, Minn.; Prophetstown, Ill., and near Bushton, Kan. . . . A $4½ million project to extend the Mid-America pipeline system in Iowa was recently announced. New legs will be added to Ogden and Charles City.

REGEIMBAL: WASHINGTON

Survey may free LPG from heavier tax

A survey of approximately 12,000 LPG-fueled trucks was recently presented to the House Ways and Means Committee in an effort to get LPG dropped from the list of "special fuels" that may face heavier taxation.

Arthur C. Kreutzer, counsel for LPGA, also suggested that the one-cent tax decrease slated to go into effect July 1 for LPG and other special fuels be permitted.

The proposal now before Congress is aimed at raising more tax money through levies on heavy vehicles and their fuels. The administration reasons that these trucks are the prime users of the interstate highway system.

In the recently completed survey, LPGA found that 87.8 per cent of the trucks used by the industry, and 84.6 per cent used by the marketers' customers, weight less than 26,000 lb (figure picked by the administration proposal as the breaking point between light and heavy vehicles).

House wage bill a "victory"

House-passed version of the minimum wage bill —a clear-cut victory for L.P. gas dealers and most other retailers—will be toughened up a little before a final compromise version is passed. But it will still fall short of the measure originally sought by President Kennedy.

The House version would bring under coverage of the law about 1.4 million new workers, mostly in retail chains. Only chains with five or more outlets in two or more states would be covered. But any unit of the chain grossing less than $250,000 a year would still be exempt. Workers covered for the first time would be subject to only a $1 an hour minimum. Overtime would not be required. The present $1 minimum for workers already covered would be raised to $1.15.

President Kennedy had asked for coverage of 4.3 million new workers in any retail store or chain grossing $1 million a year at $1.25 an hour, with overtime pay required. The Senate was expected to pass a bill close to what the President had asked. A Senate-House conference committee would iron out a final compromise.

President seeks more for REA

The Kennedy Administration is asking Congress for a whopping increase in funds for REA loans, public power development, and similar programs.

The President asked Congress to increase the loan fund of the REA by $100 million, split 50-50 for electrification and telephones. This would bring total funds available for electric loans to $195 million, plus $27.6 million left over from this year.

In addition, President Kennedy asked Congress for an extra $2.3 million to build additional transmission lines for the Bonneville Power Administra-

Take it from Mindy the Mermaid

Net more water heater profits by

Deluxe Model V5131. Available with long or short element or tube, with or without pressure regulator.

The lure of Honeywell's quality reputation adds new appeal to your water heaters

Your sales message hits home quicker when you equip your water heater with Honeywell controls. Customers know that the name Honeywell means quality — the kind of quality they can depend on. You and your customers will find it's only natural that the maker of the world's finest thermostats also makes the world's finest water heater controls.

• **Top-mounted setting** of both temperature and gas cocks gives greater convenience, eliminates stooping and squatting.

• **Built-in pressure regulator,** properly located in gas stream (models available without pressure regulator).

• **Safe-lighting interlock** prevents accidental turning of gas cock to off position once it has been put in pilot position. Pilot can be cocked only in pilot position of knob.

• **Universal Duofilt-filter** resists clogging by both dust and gum, works on all gases. AGA listed. Included at no extra cost.

Get complete information on Honeywell's quality line of water heater controls by calling your local Honeywell office. Or, write Honeywell, Minneapolis, Minnesota.

pushing the name Honeywell!

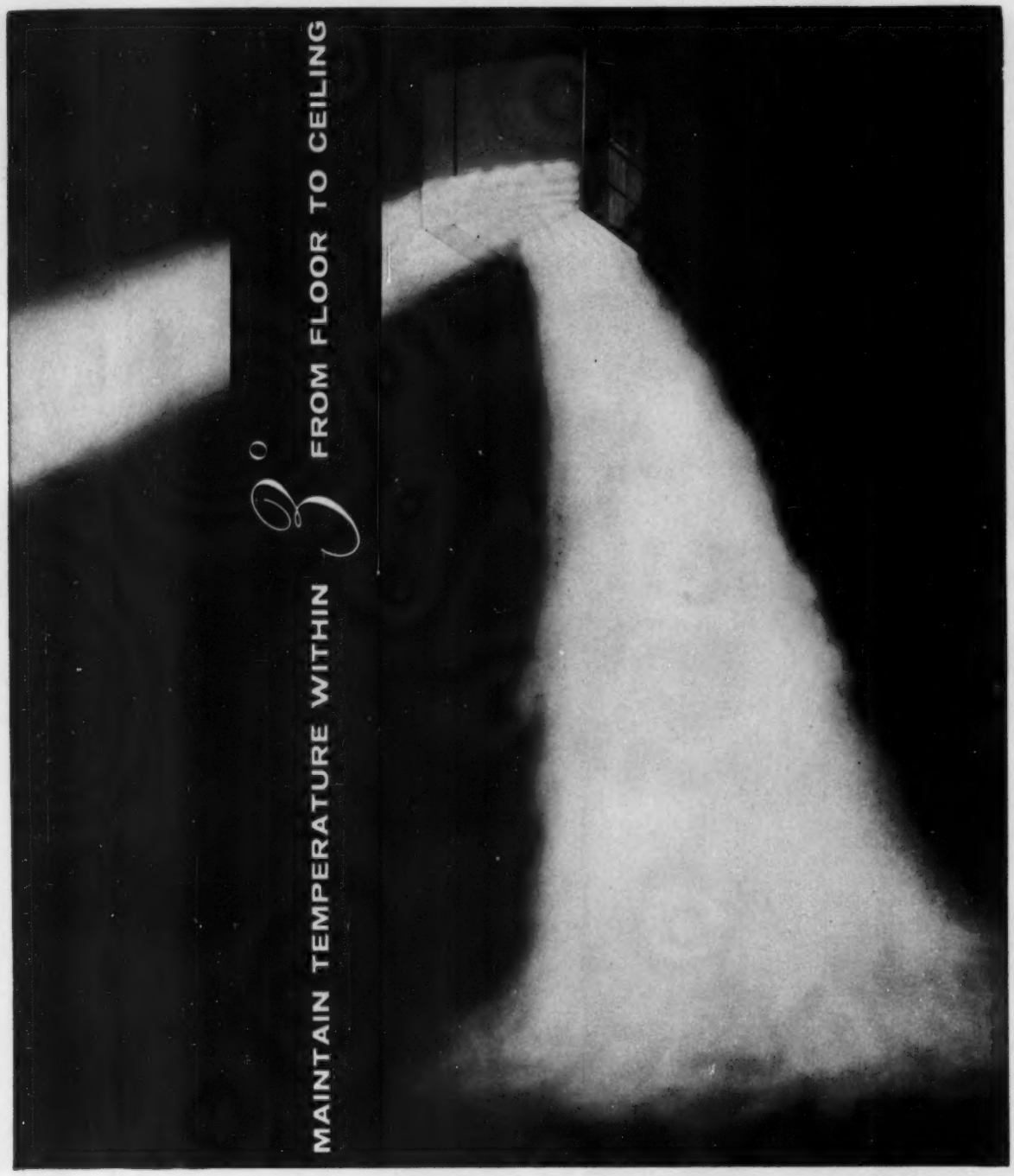
Newly styled standard Mellot V5130. Choice of long or short element or tube, with or without pressure regulator.

NEW! Honeywell's One-Stop Replacement Kit

Honeywell's new Water Heater Control Replacement Kit ends those time-consuming trips, by servicemen, back to the shop. This means faster service for the customer, too—and better customer relations. Finally, inventory costs and confusion are greatly reduced, for the Honeywell Kit replaces 14 of the most common water heater controls in use today. Order your supply now!

Honeywell

H First in Control



ARKLA-Humphrey

UNIT HEATERS

Arkla-Humphrey Multi-Directional unit heaters are accepting congratulations now. At long last, industry's toughest heating problems have been solved by the Multi-Directional!

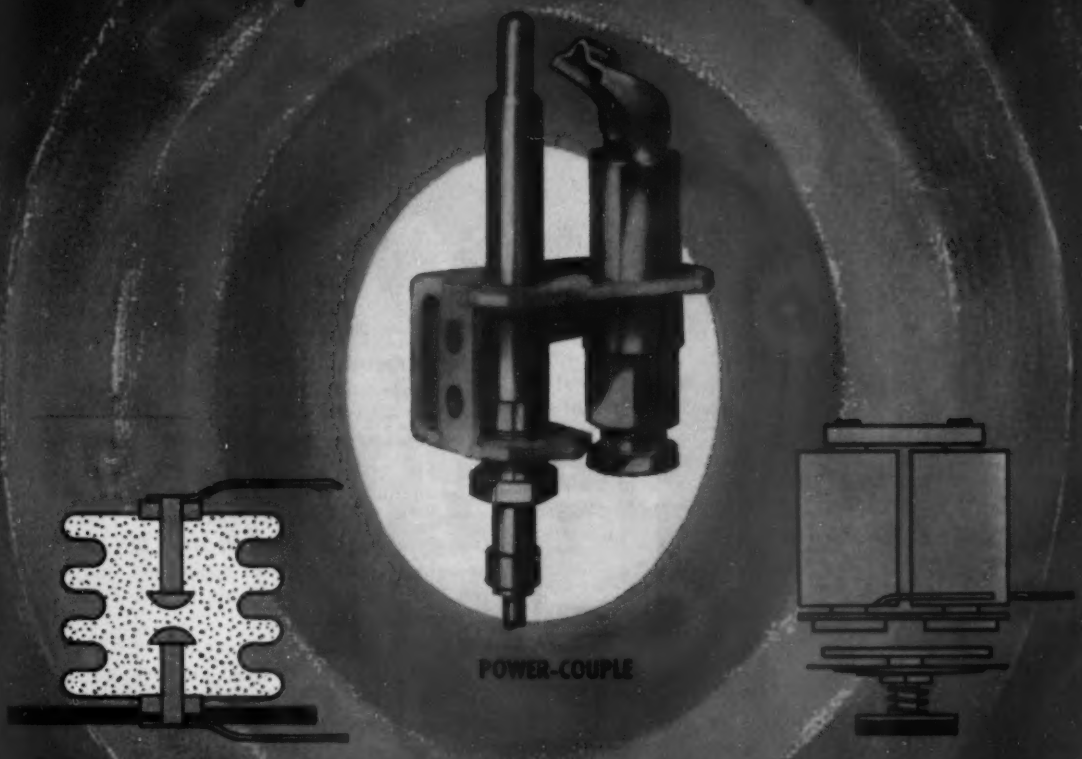
Tests show a 15.38% fuel saving with only a 3° temperature differential from floor to 18' ceiling! Smoke photo above shows you why. The Multi-Directional is the first and only unit heater to discharge heat straight down, out in front, or from either side, or any combination of these three! Pulling the heat from the ceiling with top mounted fans eliminate overheated ceilings, too.

Write for complete information.

MANUFACTURED BY GENERAL OFFICES **ARKLA** AIR CONDITIONING CORPORATION SHANNON BUILDING LITTLE ROCK, ARKANSAS

BASOTRON®

. . . flame-powered control systems



POWER-COUPLE supplies power for complete system

The Basotron flame-powered gas appliance control system is a completely integrated system that receives all of its electrical energy from a single, high-voltage, semi-metal POWER-COUPLE . . . *an exclusive development by Baso.* This unique POWER-COUPLE, that employs lead telluride, generates its own power for the entire system . . . completely independent of an outside power source.

Basotron flame-powered control systems consist of a DIRECT-LIFT Basotron valve . . . a thermostat with ENCAPSULATED CONTACTS, inside bellows . . . a POWER-COUPLE . . . and a Baso pilot burner.

Basotron flame-powered systems are available for a wide variety of gas heating appliances. Complete information given on request. Contact BASO, INC., or your Baso sales engineer.

VISIT US AT BOOTH 29-30

Get the complete story on Basotron Flame-Powered Control Systems at the LPGA Convention and Trade Show, Conrad Hilton Hotel, Chicago, Illinois, April 30 to May 3.

BASO INC.

Milwaukee 1, Wisconsin

"Pioneers in thermoelectric gas controls"

The industry in action

tion to "furnish sufficient low-cost power to rural, domestic and industrial customers."

Meanwhile, Norman M. Clapp, new REA Administrator, is pushing the REA co-ops to lead the fight to industrialize rural America. Terming co-op managers "community leaders and developers," the REA chief is urging them to form local development committees to attract new industries through low cost power.

Purse strings loosened on SBA loans

Small Business Administration is going to make it easier for firms to borrow money.

SBA, as an anti-recession measure, has increased to $50,000 the amounts that can be approved directly by regional officers without approval from Washington. Limits on approval for loans made in participation with banks and for short-term loans have also been raised. Details are available from all banks.

MARKETERS

Two L. P. gas firms merged

American Propane Gas Co. and Butane Gas Corp., both of Omaha, merged last month to form the largest independent LPG distributorship in eastern Nebraska and western Iowa. The two firms currently distribute more than three million gallons a year.

Norman Hahn, president of American Propane, is president of the new corporation.

Suburban buys Acme Butane of Fresno

Suburban Gas, Pomona, Calif., on April 1, purchased Acme Butane and Appliance Co. (1000 customers), of Fresno.

This is Suburban's first entry into the retail market in the San Joaquin Valley. Henry Haar, Acme owner, will stay on as manager.

National Propane reports high gains

National Propane Corp., Garden City, N. Y., reports the highest earnings in its history for the quarter ended Jan. 31. Earnings available for common stock rose to $607,300 from $574,400.

The company plans to expand the number of its bulk storage plants in the next 12 months to speed service and lower distribution costs.

SUPPLIERS

Steel cuts truck-tank costs 3 ways

A new entrant in the fast-growing pressure vessel highway transport manufacturing field says the "superstrength weight-saving steel" it is using will cut costs in material purchasing, manufacturing, and fuel-transporting.

The three-way claim is made by Great Lakes Steel division of National Steel Corp., the nation's fifth largest steel producer. Prime basis for the claim is that the new steel reduces trunk-tank weight 32 per cent below vessels of "high strength steel now generally specified."

The material purchasing saving is simple. The new steel delivers for "$47 a ton less than the only other superstrength-rated approved pressure vessel steel."

The manufacturing savings are also easily documented. Because less steel is required, welding and other erection costs should drop "as much as 40 per cent." Also, lighter component parts can be used because the whole unit will be lighter. And, freight costs will shrink.

The fuel-transporting savings are of greatest interest to the LPG dealer. The company estimates that the average daily drop of the average local delivery unit will go up 18 per cent to 1200 gal.

The new steel was approved by ASME after one year of testing. The approval documents the material's 100,000 psi yield strength and 115,000-135,000 psi tensile strength, making it "54 per cent stronger than conventional high strength steels." Maximum design stress under ASME code is 28,750 psi.

Bastian-Blessing wins suit

The patent infringement suit brought by the Bastian-Blessing Co., Chicago, against Vincent Brass and Aluminum Co., a Sel-Pac distributor, Minneapolis, was concluded recently in favor of B-B. The court held that B-B's patents were valid and that they had been infringed by Selwyn-Pacific Co. of Los Angeles.

Gas furnace drives own blower

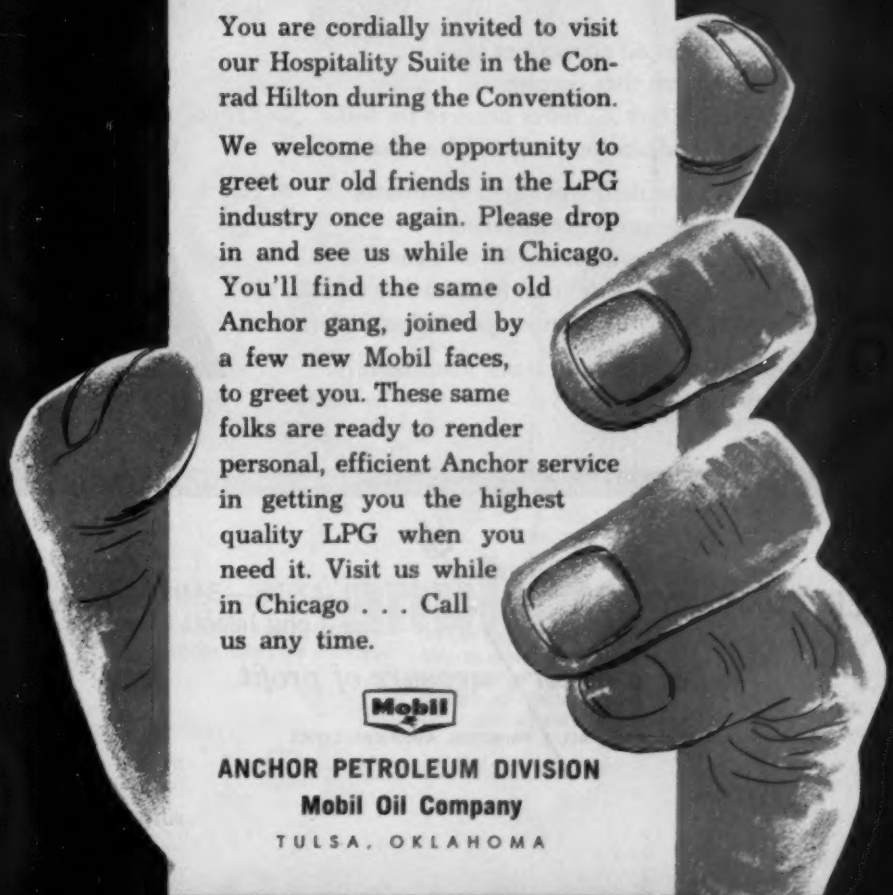
A new gas furnace that drives its own blower with power from a thermoelectric generator is under development by the C. A. Olsen Manufacturing Co., Elyria, Ohio.

The generator, rated at 130 watts, converts the heat of burning gas directly into electricity, producing sufficient power to drive a full-sized blower in the furnace. Heating capacity of the unit is 80,000

anxious To GREET YOU

You are cordially invited to visit our Hospitality Suite in the Conrad Hilton during the Convention.

We welcome the opportunity to greet our old friends in the LPG industry once again. Please drop in and see us while in Chicago. You'll find the same old Anchor gang, joined by a few new Mobil faces, to greet you. These same folks are ready to render personal, efficient Anchor service in getting you the highest quality LPG when you need it. Visit us while in Chicago . . . Call us any time.



Mobil

ANCHOR PETROLEUM DIVISION

Mobil Oil Company

TULSA, OKLAHOMA

NEPTUNE LP-

Complete Truck Metering System in One Space-Saving Unit

Nothing extra to buy... only 3 connections to make

To measure liquid LP-gas accurately and safely under all conditions, you not only need a meter, you also need *six* different accessories: vapor release, strainer, pressure relief valve, inlet check valve, differential valve, and vent line check valve.

The Neptune LP-gas meter has *all* accessories built-in. It's a complete, accurate system that requires only *three* connections. Nothing extra to buy ... fewer chances for leaks ... fewer chances for improper installation ... and takes less space.

What's more, Neptune's unique design of vapor eliminator and differential valve positively prevents metering of vapor in the system under *all* conditions. Always easy on your pumps. Never needs adjusting from hot weather to cold. Backed by nation-wide network of Neptune-operated service centers.

Your Neptune equipment jobber or tank truck manufacturer will be glad to supply details.

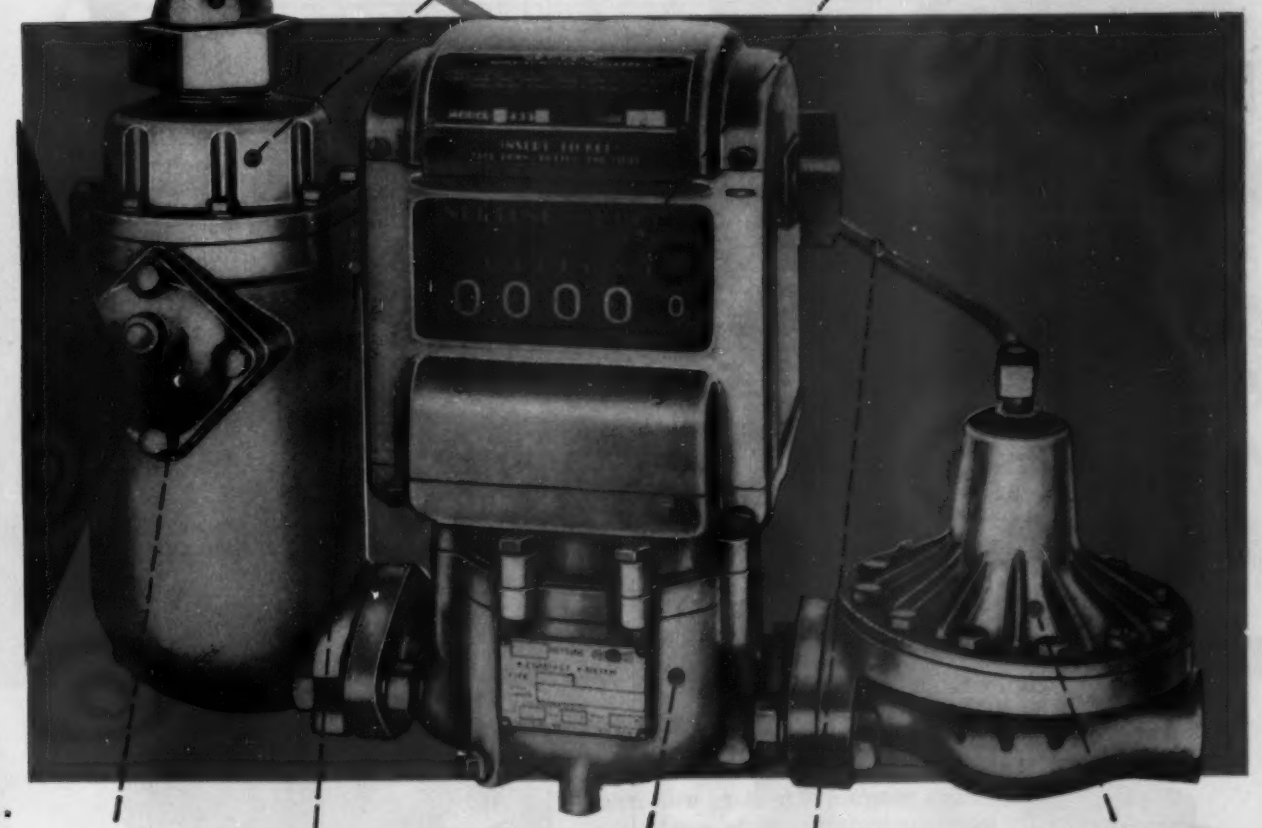
See Neptune at Booth 160 LPGA SHOW Chicago April 30–May 3

NEPTUNE METER COMPANY **neptune** 47-25—34th St., Long Island City 1, N. Y.

for a better measure of profit

BRANCHES AND JOBBERS IN ALL PRINCIPAL AMERICAN CITIES

-GAS METER



VENT LINE CHECK VALVE: Permits cleaning strainer or opening meter without depressurizing supply tank. No need to shut off valve in vent line.

PRESSURE RELIEF: Actuates at 250 psi. to prevent damage to meter or installation in case of overpressure. Vents back to supply.

Releases air and vapor from liquid before it enters measuring chamber, insuring accuracy. Excellent capacity. High-pressure float. Vapor is vented back to the supply.

REGISTER: Direct Reading or Print-O-Meter type. Easy to operate and read. Print-O-Meter delivers the meter-printed tickets your customers like so well.

STRAINER: Removes sediment and dirt from liquid, preventing undue wear or damage to meter.

INLET CHECK VALVE: At rear. Prevents backflow of LP-Gas when pump is stopped.

MEASURING CHAMBER: Positive displacement type. Only one moving element. Measures liquid by volume. Widely popular for sustained accuracy and long life.

VAPOR CONNECTING TUBE: Equalizes pressure between top of differential valve and supply tank.

DIFFERENTIAL VALVE: Maintains product in liquid form in meter, and prevents formation of vapor. Low pressure-differential is easy on pumps. Negligible friction loss.

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These big Jumbos of the United tankcar fleet are 20,500 gwc 57-footers. They carry over 19,000 gallons of LP Gas, and do the work of two regular tankcars in half the time.

Our Jumbos have new-type, easier-opening liquid and vapor valves, and an excess flow valve rated at 110 gallons per minute. These features provide really fast unloading—nearly twice the rate of standard-size cars.

We helped pioneer the use of the Jumbos because they improve our ability to serve the bulk plant operator. It's part of United's continuing program of working with industry leaders to improve fuel delivery service.

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New-type valves help cut unloading time in half.

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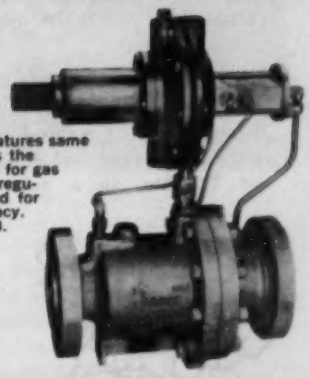
GAS BACK PRESSURE FLEXFLOS

Model 888, self-operated, gas dome-loaded. Setting is fast, easy, without springs or pilots. Recommended for natural gas, air and liquids. Bulletin #888-D.

GAS PRESSURE REDUCING FLEXFLOS

Model 80-820 where extreme accuracy is critical. Sensitive, spring loaded model 820 Grove pilot is a diaphragm controlled, three-way throttling valve. Seven adjustable spring ranges from 2 psi to 1200 psi. Send for Bulletin #813-B.



Model 80-838 features same type of pilot as the 80-820, adapted for gas back pressure regulation. Designed for extreme accuracy. Bulletin #813-B.

Grove Sets Regulator Standards for Others to follow

7078

Model 80-896A, designed for "pounds to ounces" pressure reduction. For inlet pressures to 100 psi and adjustable control ranges from 2 ounces to 20 psi. Bulletin 813-B.

Model 80-833, for low pressure services. 833 pilot is available with three adjustable spring ranges: 10-30 psi, 15-75 psi and 25-150 psi. Bulletin #813-B.

The industry in action

Btu. It consists of four modules, each containing 47 thermoelectric couples.

Janitrol enters electric furnace field

Janitrol Heating and Air Conditioning, division of Midland-Ross Corp., Columbus, has entered the electric furnace field with an electric forced warm-air furnace.

Along with a new gas-fired boiler, the electric furnace was unveiled at the company's third annual "goodwill-get-together" held recently in Miami Beach.

NEWSBRIEFS

William W. Kurtz recently joined Cylinders, Inc., Linden, N. J. as sales manager. He comes from the Scaife Co., Oakmont, Pa., where he was employed as midwest regional sales manager and LPG division sales manager.

Handley Industries, Inc. of Jackson, Mich., Sid Harvey, Inc. of Valley Stream, New York, and Statham-Swearingen, Inc., of Los Angeles have been added to GAMA membership.

"Currently scientists are working on the idea of placing LPG beneath the surface of the sea or other large bodies of water—using the hydrostatic pressure to equalize fuel pressure." The Financial Post of Toronto, in a recent issue, attributed that thought-provoking quote to LPGA prexy Rudy Munzer.

Another new gas fuel cell project was announced last month by Northern Natural Gas Co., Omaha, and Houdry Process Corp., Philadelphia. The program will be conducted at Houdry's Linwood, Pa., Lab.

The first sales reference manual ever published on gas air conditioning is now available from the American Gas Association, 420 Lexington Ave., New York 17. The 350-page book is priced at $9.

Petrolane Gas Service of Long Beach, Calif., recently has been granted certificates to provide natural gas service in the cities of Sandpoint and Bonners Ferry, Idaho. These cities, having a combined population of approximately 7000 are located along the route of the Pacific Gas Transmission Co. pipeline from Canada to San Francisco.

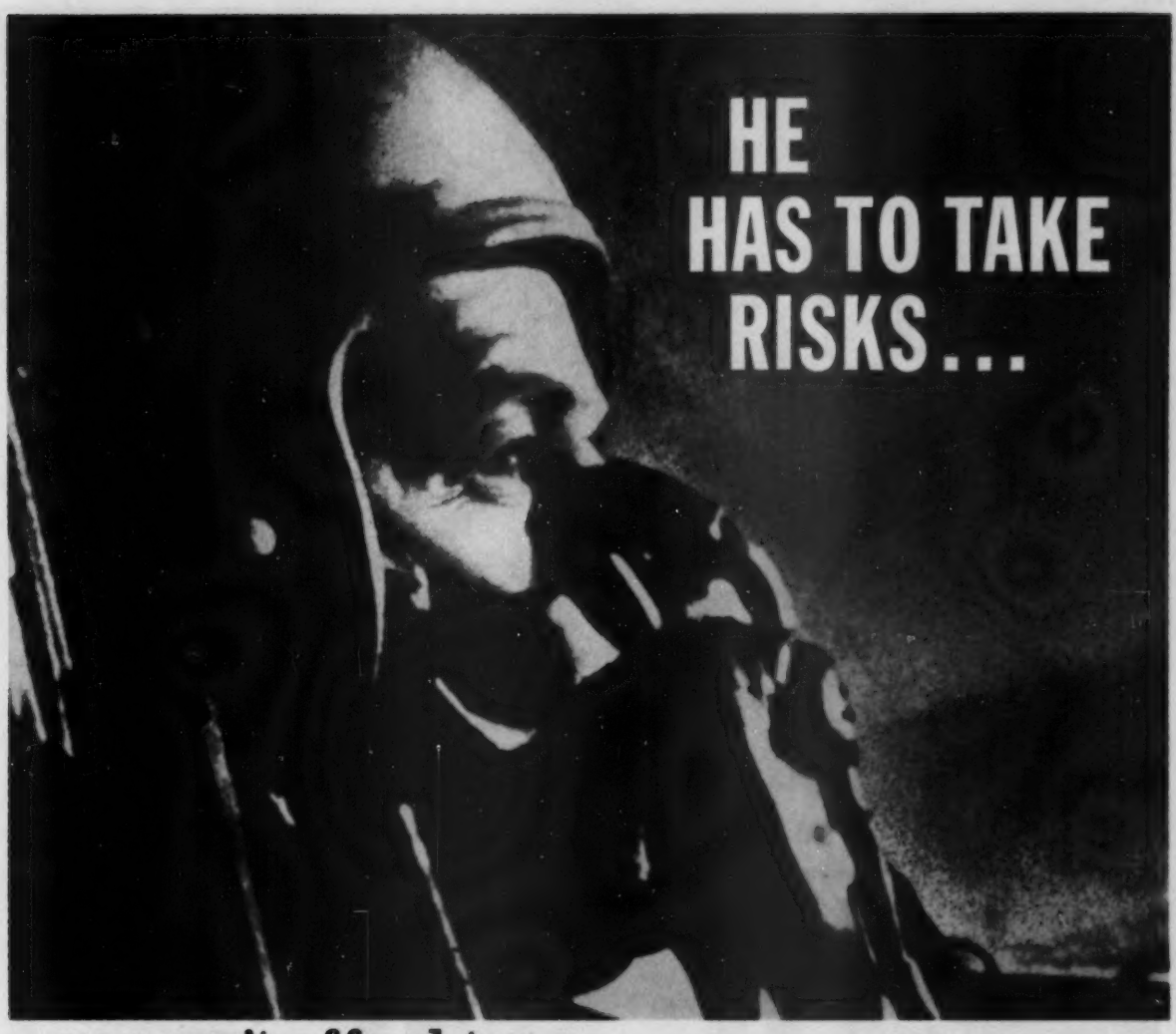
A 9.1 per cent profit increase in 1960 was shown by Southern Propane Co., subsidiary of Southern Gas & Water Co. Gross earnings were $6,523,202. Southern Propane distributes LPG in Georgia and Florida.

Falley Petroleum of Chicago recently announced the opening of new offices in Tulsa, Okla. E. S. Carley, formerly vice president of sales for Anchor, will head their new Tulsa office as a vice president.

CURRENT L.P. GAS & L.R. GAS PRODUCTION & INVENTORIES

(A.P.I. figures—in thousands of gallons)

	Propane	Butane	Bu-Pro Mix	Iso-Butane	Other Mixes	Total LPG	Total LRG
Production (U.S.)							
Mar. '61	420,692	241,769	52,014	62,228	83,134	859,837	270,952
Mar. '60	379,009	204,074	55,556	52,283	72,013	762,935	268,048
'61 to date	5,260,878	2,691,653	801,581	871,618	1,090,851	10,709,581	4,020,934
'60 same period	4,835,115	2,600,944	837,391	812,532	953,814	10,069,706	3,574,211
Inventories (3-31-61)							
Zone A	5,328	331	16	...	5	5,680	18,545
Zone B	41,406	9,405	...	581	963	52,355	27,204
Zone C	83,391	22,970	476	5,030	...	111,867	15,080
Zone D	53,556	11,123	13,799	1,624	213	80,315	1,006
Zone E	133,116	114,945	2,111	35,620	13,164	298,956	68,924
Zone F	155,317	75,103	1,363	25,850	129	257,762	2,491
Zone G	4,346	688	9,391	...	87	14,512	1,024
Zone H	849	397	66	152	107	1,571	39,382
U.S.	477,309	234,962	27,222	68,857	14,668	823,018	173,656
U.S. (3-31-60)	231,208	175,808	16,782	46,708	19,807	490,313	93,227



you can't afford to...

A test pilot's calculated risk is frequently far less than the risk of trouble undertaken by LP-Gas operators who buy equipment "as good as RegO . . . but cheaper." Just *one* service call—(with its attendant expenses of gasoline, travel time, labor cost, parts replacement)—will usually rob you of all the *pennies* you might save on a *hundred* substitutes for RegO quality.

RegO equipment has *bonus features* built-in to eliminate risks. For instance, RegO Certimatic Regulator Assemblies feature body and bonnets of tough, corrosion-proof die-cast aluminum . . . a nylon handle in brass liner lasts indefinitely, won't break in freezing weather. Special diaphragms are built to last. They provide the same uniform regulation in SUB-ZERO winters as they do in desert heat.

RegO CertiMatic®

BOTTLE-GAS OUTFITS

Provides dependable two-stage regulation *and* operates as an automatic throwover manifold. Handles loads up to 568,000 BTU/hr (225CFH). Model 7519M (shown) includes remote Service and Reserve Indicator. Also available, Model 7519D with RegO *Prismatic* Indicator visible from 30 feet.

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Operation Success

OPERATION SUCCESS is underway - and it starts with the dynamic new Magic Chef line, featuring Gold Star Award ranges. Operation Success is destined to gain even further success in 1961 for you and for the all-new, expanded Magic Chef line. Watch for the aggressive merchandising program including exciting national and local advertising, complete retail promotions and premium programs. ■ Heralding Operation Success are Gold Star Award winners - representatives of the totally new, competitively priced Magic Chef line. Take a close look at the beauties below... all recipients of the Gold Star Award!

36" range from the Chefmaster group—a Magic Chef beauty with brains. Dial-a-Magic roasting control computes cooking time automatically.

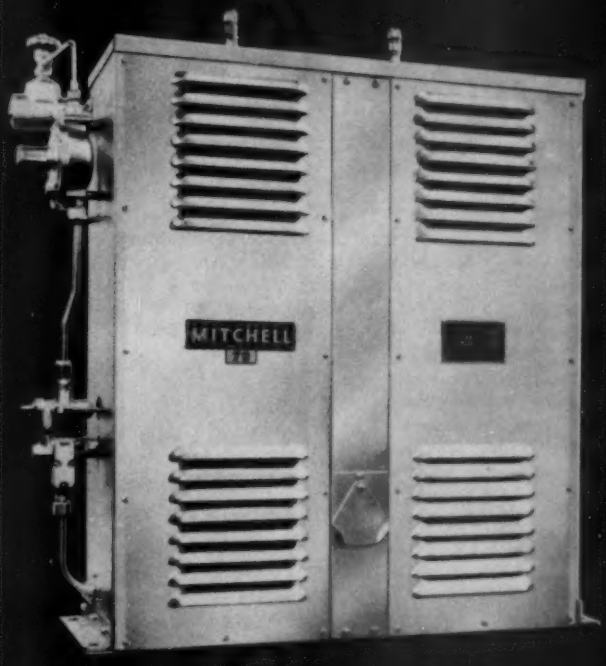
30" range from the Mealmaster group — featuring the handsome Magic Chef sculptured backpanel with a permanent cook chart to eliminate guesswork.

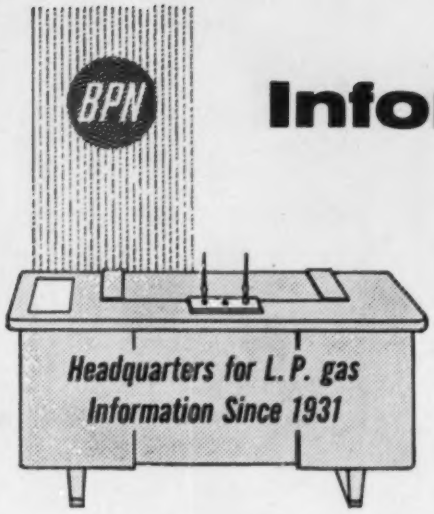
36" range from the Mealmaster group — with electric clock and timer plus gleaming aluminum lamphood with double showcase bulb to light cooking surface.

Step up to profitable merchandising with Magic Chef's wide selection of Gold Star Award models—yours in a broad range of prices and sizes. Wire or write Magic Chef, Inc., Cleveland, Tennessee.

MAGIC CHEF

VAPORIZERS





Information Desk

Burner pressure standards vary among countries . . . Does LPG cause meat to darken? . . . Converting diesels to LPG

11-in. W. C. pressure is American standard

California

I made a camping tour through Europe last summer and while there, I purchased some excellent propane camping equipment in Germany. This equipment operates on 500 mm W. C. or 19¾-in. W. C. instead of 11-in. W. C. Why is their a difference in pressure? It varies from country to country. I have tested different types of stoves and lights at different pressures and the equipment performs much better than it does at lower pressures.

What could be the reason for using 11-in. W. C. against 19¾-in. W. C.? The pressure difference is so little when it comes to measuring in inches of water column. Could you enlighten me on this minor problem?

W. B. H.

The 11-in. water column standard for burner pressures on LPG appliance seems to have been established by usage. There appeared to be a trend toward using 11-in. water column in the early days of the industry and it was finally established as the standard pressure. The natural gas industry apparently established 7- or 8-in. in a similar manner. Whether by coincidence or planning, you will find that the mass of flowing gas times its velocity through an orifice will be about the same for natural gas and LPG at the above pressures.

I do not know whether there is any other special reason for the 11-in. column, nor do I know why some of the foreign countries use the 500-mm water column pressure at the orifice. It may simply be that they find it a nice round number. They may size their burner parts smaller and they may feel they need the additional pressure. In general, I think that as the orifice pressure increases the burners may become noisier, although I doubt if you will notice much difference at the above low pressures.—Ed.

Electrical competition tells typical tale

Texas

We have a customer that has an open heater in a small grocery store. A salesman for the electric company has been trying to sell him electrical heat and told him that LPG was causing his meat to darken in the case. Is this possible?

V. H. A.

If the representative of the electric company cannot sell his products any better than by denouncing other people's products, he is a poor salesman. His claim that an LPG open heater is causing the meat to darken is out of order.

There is no reason that we know of why the LPG heater would have any effect on the meat in the grocery stores. The meat will probably darken if it lies in the display case or the refrigerator for any length of time whether the butane heater is operating or not.—Ed.

LPG installations uncommon on diesels

Belgium

We have been solicited to place LPG installations on diesel trucks.

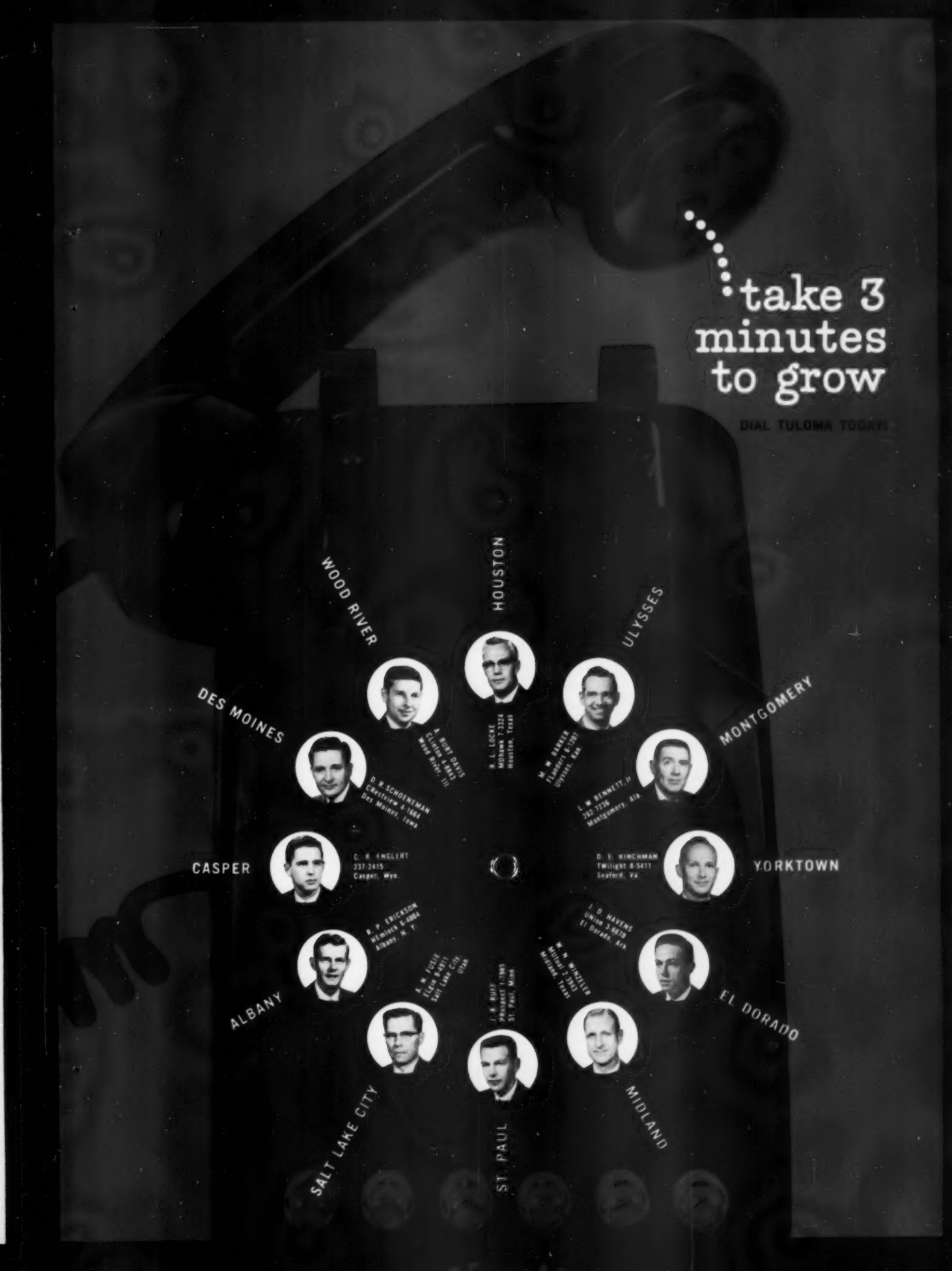
In Belgium this is not common at all, and so this part of LPG business is very new to us.

Could you please inform us as to LPG conversions on diesel trucks?

P. V. A.

The use of LPG installations on diesel trucks is not common in the United States at the present time. The conversion requires an ignition system on the truck to use LPG in place of diesel, although the Ellis Manifold Co. of Los Angeles has done some work toward supplementing the diesel fuel with LPG introduced with air.

Mr. Ellis, of that company, will be sending you some descriptive information on the equipment and its application to diesel engines.—Ed.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During the past 18 months
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1. ENLARGED ARCADIA UNDERGROUND STORAGE
2. OPENED ST. PAUL OFFICE
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4. BEGAN SERVICE AT EMPIRE ABO PLANT
5. TIED MORE PLANTS TO MID AMERICA PIPELINE THAN ANY OTHER SUPPLIER
6. DOUBLED PRODUCTION AT OLD OCEAN PLANT
7. INSTALLED BLUE RIDGE UNDERGROUND STORAGE
8. PRODUCTION AT GEISMAR PLANT
9. EXPANDED EL DORADO & CASPER OFFICES
10. INSTALLED NEW MONTGOMERY REGIONAL OFFICE
11. REORGANIZED YORKTOWN OFFICE AND TERMINAL
12. CREATED NEW ALBANY REGIONAL OFFICE
13. INTRODUCED 30,000 GALLON "JUMBOIZED" TANK CARS
14. STARTED WOOD RIVER UNDERGROUND STORAGE
15. ESTABLISHED WOOD RIVER OFFICE
16. OPENED DES MOINES REGIONAL OFFICE
17. ENLARGED HUTCHINSON UNDERGROUND STORAGE
18. INTRODUCED "SUPERSIZED" TRUCK FLEET

And— more on the way!

DIAL TULOMA TODAY!

A simple three minute telephone call . . . the first step in your expansion plans.

Every Tuloma sales engineer has a case full of profit making ideas and forward looking concepts for the LP-Gas industry . . .

He knows Tuloma's increased production, enlarged storage, jumboized transportation and expanded service were especially engineered to help you expand, to help you stay ahead of your competition. But don't take our word for it. Find out for yourself! Take three minutes . . . call Tuloma today. Let's talk over *your* expansion.

(And we'll even pay for the call!)

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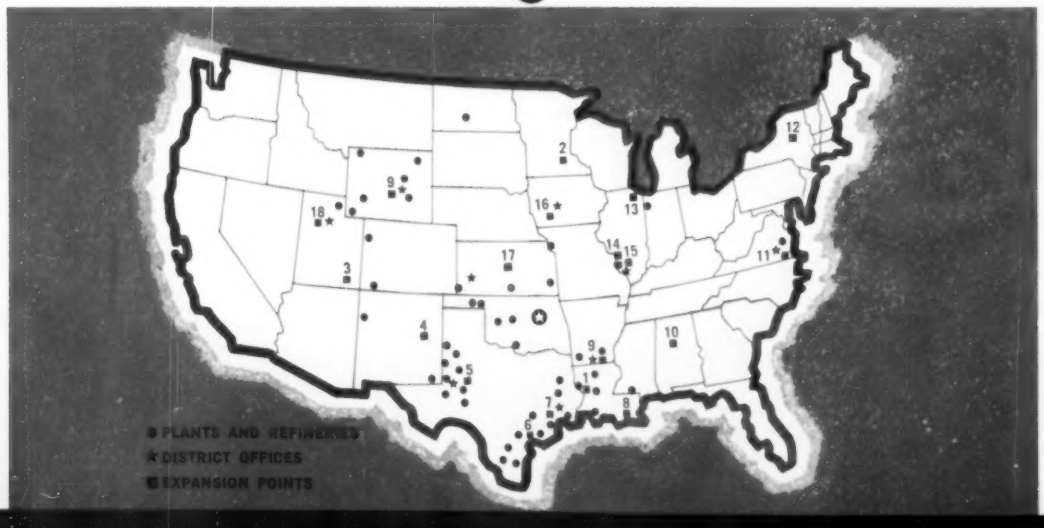


Beyond the Mains

By WILLIAM W. CLARK • Editor

Toward a better "image"

Slowly, ever so slowly, a true picture of the importance of the L.P. gas industry is beginning to build up in the minds of producers. They are not ready to give it full family status just yet. But a shift in their thinking *is* perceptible.

Facts are facts. The industry is important, and it deserves better attention than it has. This was brought out forcefully at the March convention of the Natural Gasoline Association in Dallas by two of the top speakers, Don Warning of American Oil Co. and K. B. Blanchard of Tuloma.

"Natural gas liquids," thundered Blanchard, "have been marketed as a sideline too long! Our attitudes, and the attitudes of most people concerned with the petroleum industry—including top management of almost every major oil company—have been governed by the consideration of natural gas liquids as a secondary—incidental—source of revenue.

"Is this image justified? Is it borne out by fact? I think not!"

What sort of image does the industry deserve?

"Back in 1930," continued Blanchard, "natural gas liquids supplied less than 2 per cent of total domestic demand. In 1960, they (were) close to 12 per cent."

Where, within the NGL family, does LPG stand? "Not too long ago," said Blanchard, "natural gasoline (was) about the only liquid. Today, however, it represents only about 35 per cent of the total liquids production . . . by 1970, it will be only 30 per cent." LPG, then, makes up an increasingly larger percentage of it.

Why all this emphasis on liquids? Partly because of the Phillips decision in 1954, said Warning. "This placed natural gas under federal regulation. NGL took on added significance, for when it turned out that the goal of federal regulation was the suppression of the price of gas, NGL, a joint product of natural gas production, yet free of government regulation, could still be developed as the industry saw fit. And now NGL brings the producer more, per unit of energy, than does natural gas."

Are there potential markets?

"Time and again," said Warning, "my own department has been asked to undertake studies to forecast the demand for LPG and suggest ways of marketing it. Each time the studies have turned up similar answers. *Because it is so versatile, there is theoretically no end of potential markets.*"

But, said Warning: "Aggressiveness is especially needed in the L.P. gas business because in virtually every application, LPG is a substitute for petroleum fuel that has been doing its job well. So, despite the fact that LPG has some superior qualities of its own, it is new to the customer and untried, and consequently it has to be pushed."

Is it being pushed?

"No," declared Blanchard. "Until recently, little was invested in marketing facilities to move the additional natural gas liquids that became available as a result of (the improvements in refining and gas production methods)."

"Natural gas liquids have never known a clearly defined marketing pattern. Until recently, most of our companies turned this vital job over to 'outsiders.'

"To a degree, the future of the oil industry depends on NGL . . . the marketing of natural gas liquids—all of them—is our business, just as surely as producing them, storing them, and marketing them.

"Marketing is not, and must never again be, a sideline."

SAVE $414 per truck IN THE FIRST YEAR!

NEW FORD ECONOLINE VANS

Now, *you can save $312 to $433 in price* alone* on a Ford Econoline Van compared to old-style half-ton panels. In addition, you can save over $100 every 16,000 miles you drive!

These savings come with a man-size truck. The Econoline's cab-forward design with welded "body-frame" gives bridge-like strength and reduces dead weight to haul a full ¾-ton. Only 14 feet overall, Ford Econolines are nimble in traffic, easy to park, need less garage space. Big 4-ft. door opening (both curbside and rear) and level cargo floor provide new loading ease . . . new load workability.

Special Note To Pickup Owners: Now, you can protect your loads from weather and theft with an Econoline Van . . . yet, pay less* than for most conventional ½-ton pickups. And you can get the same $102 savings on operating expenses as shown at the right.

**Based on a comparison of latest available manufacturers' suggested retail prices*

HERE'S HOW YOU SAVE

SAVINGS ON OPERATING EXPENSES EVERY YEAR!

GAS Econoline trucks can give 30% better gas mileage than conventional ½-tonners. Figuring 16,000 miles per year at prevailing gas prices, you save..... **$70**

OIL—Crankcase capacity is only 3½ quarts instead of 5 quarts, and the recommended oil change interval is 4,000 miles versus 2,000 miles. In 16,000 miles you save..... **$13**

TIRES—Econoline tires last longer, cost less to replace. Prorated saving for 16,000 miles as high as $53. Typical saving..... **$16**

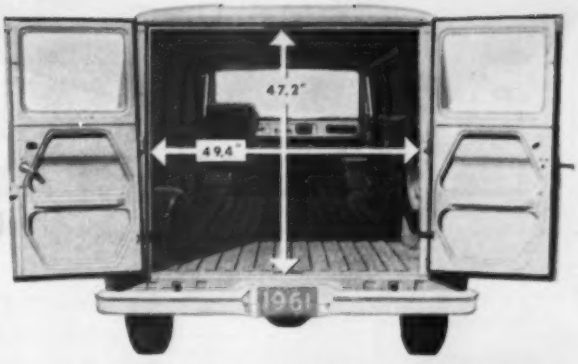
LICENSE—In many states (not all) the license for an Econoline costs appreciably less—up to $30.40 per year. Average for all states is..... **$3**

$102

SAVING ON PRICE—You can save $312 compared to even the lowest-priced conventional ½-ton panel—and up to $433 against others! Saving at least..... **$312**

TOTAL FIRST YEAR SAVINGS... $414

and you keep saving $102 EVERY YEAR!



NO REAR ENGINE HUMP!

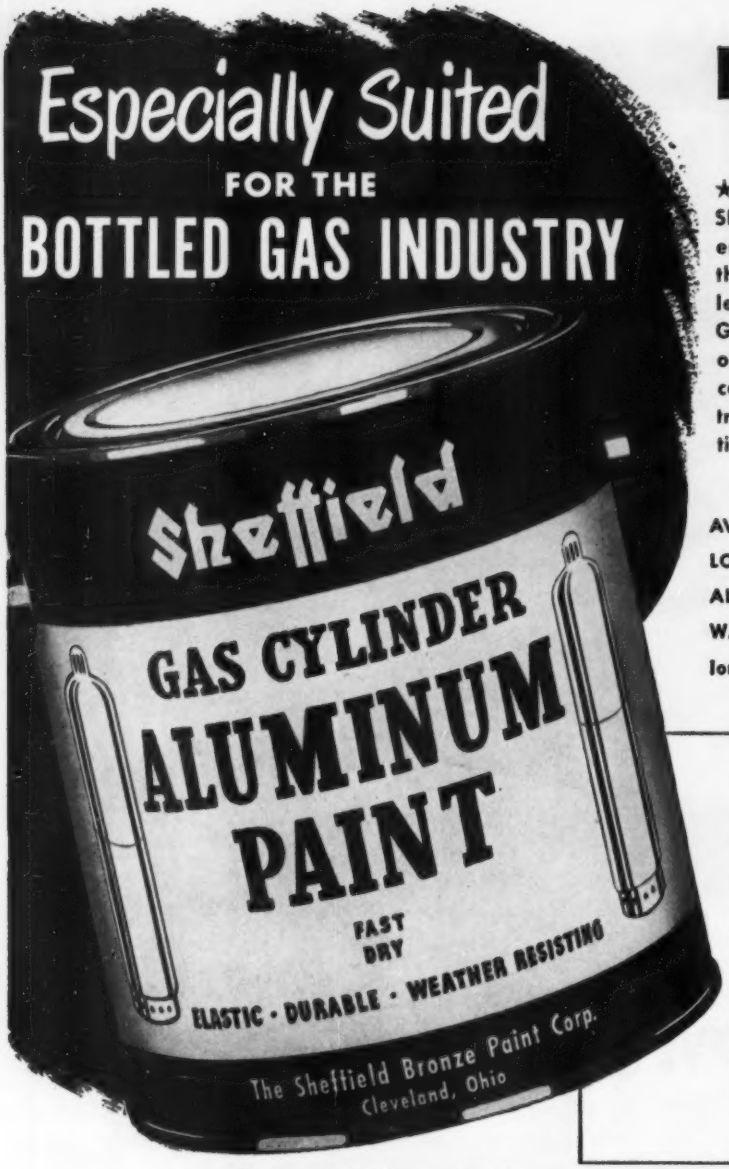
The Econoline's "up front" engine leaves a level, knee-high floor almost 9 ft. long. There's no awkward rear-engine-housing hump to shrink the back entrance or hinder loading. And the Econoline Van provides over 204 cu. ft. of loadspace . . . up to 57 cu. ft. more than conventional ½-ton panels.

FORD TRUCKS COST LESS

SEE YOUR FORD DEALER'S "CERTIFIED ECONOMY BOOK" FOR PROOF!

FORD DIVISION, Ford Motor Company

Especially Suited FOR THE BOTTLED GAS INDUSTRY



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AVAILABLE IN GALLON, 5 GALLON and 55 GALLON CONTAINERS. Remember . . . SHEFFIELD ALUMINUM GAS CYLINDER PAINT is better ALLWAYS . . . MORE ECONOMICAL . . . a little goes a long way!

- ★ Fast Drying
- ★ May Be Stencilled Within 15 Minutes
- ★ Hard Surface
- ★ Won't Rub Off
- ★ Smooth Finish
- ★ Semi-Lustre
- ★ Long Wearing
- ★ May Be Brushed or Sprayed
- ★ No Unpleasant Odor
- ★ Made With A Special Synthetic Vehicle Insoluble in Turpentine or Ordinary Petroleum Thinners

Sheffield ALUMINUM TANK PAINT

Laboratory Tested

Extensive weather-o-meter tests prove this NEW aluminum paint will resist more than one and one-half years EXPOSURE TO WEATHER EXTREMES! Formulated to do TWO specific jobs . . . to PROTECT surfaces against rust, wear and corrosion and to add a long-lasting attractive finish. Covers all primed surfaces in ONE COAT . . . economical in application . . . economical because it is long lasting!

Ideal For Bulk Gas Storage Tanks

Sheffield *Bronze* PAINT CORPORATION

ONE OF THE WORLD'S LARGEST MANUFACTURERS OF ALUMINUM PAINTS

CLEVELAND 19, OHIO

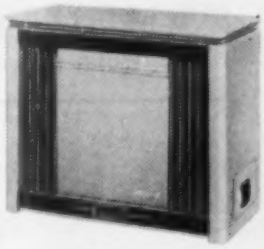
Only Martin Offers Both These Sales Extras . . .

Continental Console Cabinet Styling . . .

High Fidelity Heat . . .

If you want to sell more gas heaters . . . you have to please two people. The woman wants beauty. Martin gives it with smart Continental Console Cabinet styling. The man wants heating efficiency. Martin gives it, in full measure, with the kind of engineering that produced High Fidelity heat.

Yes, Continental Console styling and High Fidelity heat are tangible, sales producing extras, available to you only with the Martin line. For the full story, see your Martin distributor or write for Catalogue today.



MARTIN V-900 VENTED CIRCULATOR

One example of the smartness of Martin Continental Console Cabinet design. V-900 series is available in 4 sizes. All have High Fidelity Heat, Lifetime Guaranteed cast iron burners and permanent easy-to-keep Porcelain finish.

MEMBER LPCA

Martin STAMPING & STOVE COMPANY
HUNTSVILLE, ALABAMA

AMERICA'S MOST COMPLETE HEATING LINE

YOUR PERSONAL CHECK-LIST

THE BEST MATERIALS, THE MOST SKILLED CRAFTSMEN— ASSURE YOU OF THE BEST TRANSPORT

GENERAL SPECIFICATIONS: Single-Barrel Blimp, straight-through construction. Built in accordance with I.C.C. Specifications MC-330, and the current ASME Code for Unfired Pressure Vessels.

TANK STANDARD: Fabricated of T-1 steel having a rating of 115,000# tensile strength. Working pressure: 250 p.s.i. for Propane, and 265# p.s.i. for Anhydrous Ammonia. X-rayed and inspected by authorized agency with certificate furnished. National Board registration. Complete air test of vessel and piping equipment after fabrication as required by I.C.C. regulations.

TANK PROPER: Rotary gauge, pressure gauge, temperature gauge, and four (4) fixed level gauges. All gauges are located curbside center of vessel in recessed wells. Both relief valves located at opposite ends of tank and are completely recessed. Bolted manhole at either end of tank.

SKIRTING: Fenders over rear wheels only.

BUMPER: Heavy duty.

LADDER: Available option.

LANDING LEGS: Two-speed landing gear.

TERMINAL CONNECTIONS: In accordance with N.B.F.U. Pamphlet 58 — I.C.C. requirements, and all applicable state regulations.

VALVES: 3" vertical splash filler, 3" liquid outlet, 1¼" vapor line. Includes excess-flow valves and shut-off valve, Rego, Globe or Angle. All pipes and fittings are extra heavy (Schedule 80). Liquid and vapor located ahead or rear of tandem as per customer requirements.

LIGHTS & WIRING: I.C.C. No. 3 wiring waterproof and vaporproof enclosed in copper or aluminum tubing with threaded connections at lights and junction boxes. 12 volt system. All lighting in accordance with I.C.C. Specification MC-330.

UNDERCARRIAGE: Reyco. Other makes available.

AXLES: 18,000# Standard Forge. Other makes available.

BRAKES: 16½" x 7" Westinghouse Air Brakes.

WHEELS: 20", 5-spoke Dayton steel. Others available.

RIMS: 7.50 (8 per tandem).

TIRES: 10:00 x 20 — 12 Ply Rayon. 1st line 100 level, all brands.

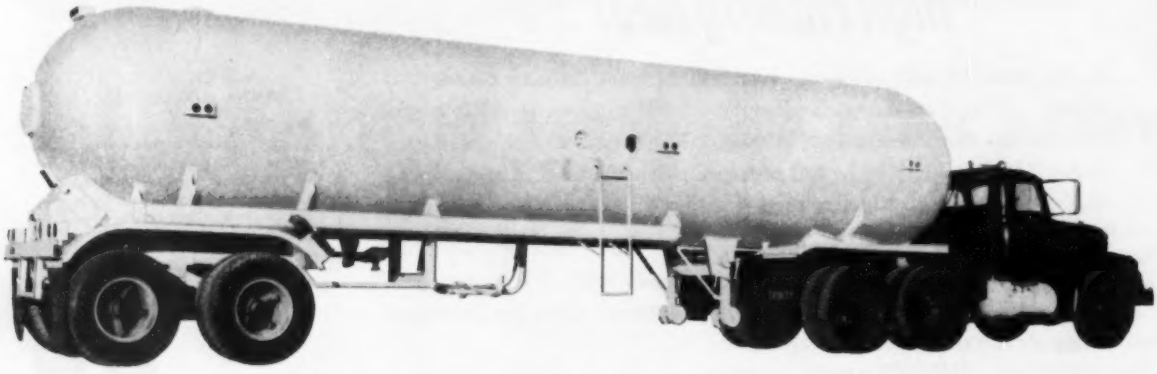
UPPER 5th WHEEL: Bolted adjustable with SAE kingpin.

TIRE CARRIER: Basket type.

PAINT: Sandblasted, prime painted, and finish painted 2 coats Dupont Dulux white. Two tone and lettering optional.

*You are invited to request a quotation on special components or features not shown as "standard."

WE'LL SEE YOU IN CHICAGO AT THE LPGA CONVENTION — BOOTHS 38 & 39



TRINITY

STEEL COMPANY, INC.

4001 IRVING BLVD. • DALLAS 7, TEXAS • FL7-3961

FRANCESVILLE, INDIANA • WHEN IN MEXICO CITY, VISIT TANQUES de ACERO TRINITY, S.A.

THE FIRST 2 MILLION CUSTOMERS

The responses of more than 2000 dealers to the BPN Census have now been processed; the information has been entered on punch cards, and an interim readout has been made.

Total gallonage sales in excess of 1.2 billion are covered. This represents 23 per cent of the total sales of the product in 1960 for domestic and commercial and motor fuel uses, as estimated in the latest annual Phillips report.

An interim report on BPN's Census of the Industry

THE FIRST 2 MILLION CUSTOMERS

WILLIAM W. CLARK

Editor

THE IMAGE OF A GIANT IS BEGINNING TO TAKE SHAPE in the BUTANE-PROPANE *News* Census of the Industry.

At press time, replies to mail questionnaires—and some personal interviews—had yielded the following totals:

Total dealers replying: 2537
Total number of "plants": 2572
Total customers: 1,932,065
Tank customers: 776,814
Cylinder customers: 1,155,251
Gross storage: 108,672,000 gal.
Number of dealers selling appliances: 2146.

Upwards of 1000 more replies were ready for processing. It was estimated that, when complete, these would bring the percentage of industry sales that are represented —in terms of gallons—to more than one-third of the national total.

What facts is the census bringing out?

It shows, for one thing, the regional, state — even county — patterns of sales. It shows where gallonage sales are heaviest, where bulk customers predominate, where saturations of dealer outlets are heaviest, where the greatest concentrations of storage exist. It locates plants by counties. It shows, at the same time, where the market is most thoroughly developed, and gives the key to those areas where the market potential is still greatest.

Most importantly, for the dealers, it is providing information that is badly needed by the "financial community," which only lately has begun giving the industry a measure of the attention it deserves. With so much still unknown, a great deal more detailed information is needed to present to those who hold tight the purse strings of the nation. In the money markets, the more clear the industry's image, the more favorable will be the reaction to it.

BPN's Census takes a giant step in providing the needed information.

At this interim point, certain regional characteristics appear. Ratios of tank-to-cylinder customers in themselves give food for thought. Tank customers predominate in the Far West and the South, and to a lesser extent in the Rockies. Kansas joins the South for the purposes of this regional breakdown. The Midwest shows a wavering between cylinder and tank domination: the western tier leans slightly to bulk distribution, Missouri is split about 50-50, and then, as one moves eastward, the race clearly goes to cylinders.

This pattern illustrates again the overwhelming importance of transportation costs in setting distribution patterns. For example, Tennessee and Illinois, at this point, show about a 2-to-1 ratio favoring cylinders. Wisconsin, to the north, is about 3½-to-1, while Indiana on the east is about 3:1. Ohio is 5-to-1, Pennsylvania 11 to 1, Maine 13 to 1.

Moving in the other direction from the cylinder-tank "border states," we find that Tennessee is 3-to-1 tanks, Arkansas 5 to 1, Georgia 4½-to-1, Alabama 16 to 1, Louisiana 66 to 1. As we near the Rockies and the West, the ratios once again tend to approach a balance.

Since the industry is a dynamic thing, these ratios will change with time. Followup studies will pinpoint the trends. For example, the effects of the new Mid-America line have not as yet been felt in Minnesota, Wisconsin, Iowa, and neighboring states. If this line changes the ratios, it will be a relatively slow process. When a new pipeline is built into the Southeast, there may be quickening trends to tank service in the Carolinas and up into Virginia.

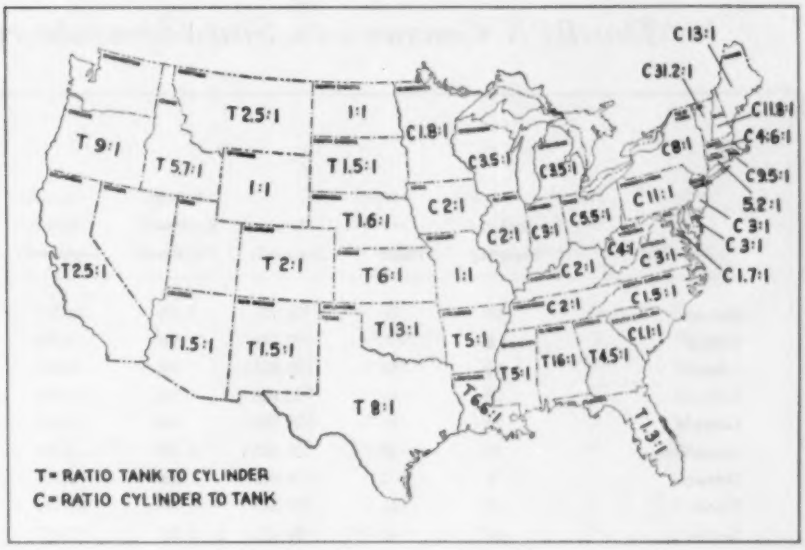
Gallonage sales closely parallel these ratios. To pick a few at random: In Maine, with its 13:1 ratio, the average sales per customer per year are a mere 107; in Oklahoma, on the other hand, where the ratio is reversed, they average 1186 gal. per customer. In Missouri, where to date the census shows a 1-to-1 standoff, each customer uses 618 gal. per year. Then consider Tennessee and Virginia, which to date show almost identical ratios, but on opposite sides of the fence. Tennessee has three tanks for every cylinder, and usage runs 791 gal. per customer; Virginia has three cylinders for every tank, and usage runs 216 gal.

It's axiomatic that the greater the usage, the greater the volume of storage needed. Thus it's not surprising to note that storage in Maine is equal to only a quarter of a gallon per customer, while in Louisiana it's 36 and in Oklahoma 42.

We can also observe some interesting patterns in appliance sales. In Maine, where about one-fourth the total gallonage is represented, all dealers who have reported to date sell appliances. In Louisiana, only 2 out of 3 do. In Oklahoma, slightly more than half do. In Ohio, the percentage is 8 out of 9, in Pennsylvania 7 out of 8, in Texas 3 out of 5, in Virginia 9 out of 10. There appears to be a correlation of sorts: where usage is heaviest, dealers don't bother as much with appliances, but where sales are light, they are in the appliance business with both feet.

This, however, is only one of a number of factors that would affect a dealer's decision to push appliances. Witness Missouri, for example, where half the customers are served in bulk and where usage is about average: there, 11 out of 12 dealers sell appliances, slightly more than in Ohio, Pennsylvania, or Virginia.

Back to bulk storage: The greater the usage in any state, the greater the percentage of dealers who have their own bulk storage.



How marketing patterns differ throughout the nation is shown in this map. Tank delivery is heaviest in the South and Southwest; cylinders predominate in the Northeast. In the Midwest, the ratios approach 1 to 1.

In New York state, for example, fewer than 30 per cent of the dealers reporting have any, while in Kansas 101 out of 103 dealers who have reported do. In Maine, only 1 out of 10 has any storage.

All told, 1632 out of 2537 dealers reporting have their own bulk storage. Some sell no gas in bulk. Some sell in bulk but have no bulk storage, picking up gas from a refinery natural gasoline plant, or someone else's storage depot and delivering it direct to the customer.

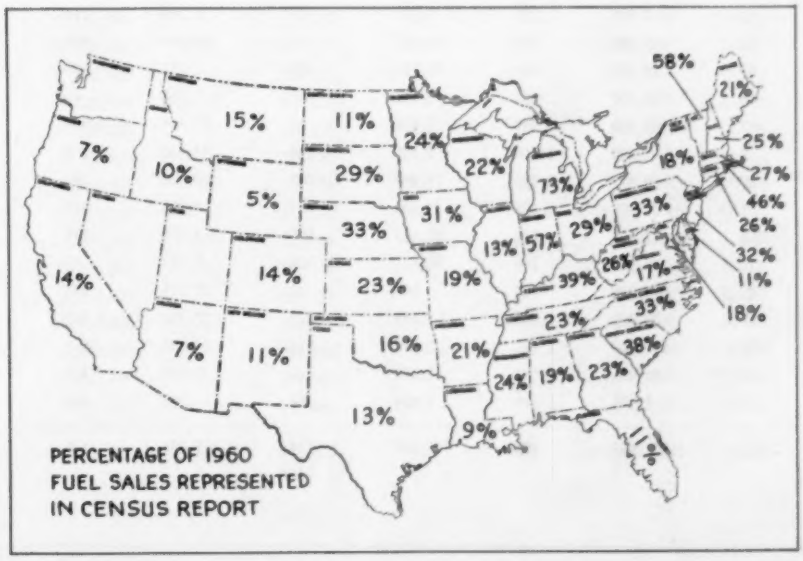
In areas where usage is lighter, each dealer usually has more customers than have his brethren in the higher-usage states. For example, Maryland dealers have 1577 customers each, on the average, while Massachusetts dealers have 948. In Texas and Oklahoma, where small dealers abound, the average is 547 and 451 per dealer, respectively. Connecticut and Delaware dealers, respectively, have 1227 and 1280 customers, average.

But there are exceptions. Alabama, a high-usage state, averages 1491, Louisiana 996. Mississippi has well over 800.

It should be pointed out at this juncture just what a "dealer" is. For the purposes of this census, he —or it—is defined as a marketing unit or outlet. Thus a multiple-outlet organization — a Protane, Fuelane, or a National Propane—is not defined as a "dealer," but each of its operating units is. An individual "plant" is not necessarily a dealer either; there may be two or more plants operating as a unit. Dealer, then, means unit—in the most logical sense of the word.

In these days of mergers and huge combinations, any other definition would distort the total picture of the market.

At this point, the Census is moving rapidly, but is far from complete. One state, however—Michigan—is 73 per cent finished, according to our best estimates. That state is more thoroughly analyzed, county by county, in an article appearing on pages 52-53. ■



Nearly three-fourths of Michigan has now been counted in the census. Vermont and Indiana are both more than 50 per cent complete. In some of the western states, returns are now only beginning to be compiled.

The BPN Census . . . State-by-state recap of information

State	Dealers Reporting	Plants	Total Customers	Average Customers Per Dealer	Tank Customers	Average Per Dealer	Cylinder Customers	Average Per Dealer
Alabama	27	27	40,251	1,491	37,826	1,401	2,425	90
Arizona	6	6	2,200	367	1,350	225	850	142
Arkansas	56	56	39,651	708	33,448	597	6,203	111
California	66	66	55,690	844	38,900	589	16,790	255
Colorado	34	34	19,528	574	12,707	374	6,821	200
Connecticut	29	29	35,579	1,227	5,660	195	29,919	1,032
Delaware	5	5	6,400	1,280	1,500	300	4,900	980
Florida	55	55	77,047	1,401	42,730	777	34,317	624
Georgia	40	40	51,815	1,295	42,445	1,061	9,370	234
Idaho	9	9	2,016	224	1,705	189	311	35
Illinois	84	84	57,843	689	19,563	233	38,280	456
Indiana	136	138	107,728	792	27,873	205	79,855	587
Iowa	111	111	55,168	497	18,415	166	36,753	331
Kansas	103	103	35,180	341	30,113	292	5,067	49
Kentucky	65	65	52,666	810	18,200	280	34,466	530
Louisiana	19	19	18,930	996	18,650	981	280	15
Maine	45	45	36,500	811	274	6	36,226	805
Maryland	10	10	15,775	1,577	6,075	607	9,700	970
Massachusetts	66	66	62,609	949	10,637	162	51,972	787
Michigan	255	279	197,630	775	43,975	172	153,655	603
Minnesota	109	109	55,487	509	19,903	183	35,584	326
Mississippi	41	41	34,471	841	29,672	724	4,799	117
Missouri	110	110	76,077	692	36,609	333	39,468	359
Montana	16	16	4,382	274	3,087	193	1,295	81
Nebraska	52	52	19,606	377	12,248	236	7,358	141
New Hampshire	34	34	27,166	799	2,115	62	25,051	737
New Jersey	46	51	57,910	1,259	13,500	294	44,410	965
New Mexico	13	13	7,259	558	4,499	346	2,760	212
New York	103	105	115,831	1,125	13,059	127	102,772	998
North Carolina	55	55	54,151	985	22,377	407	31,774	578
North Dakota	23	23	5,309	231	2,761	120	2,548	111
Ohio	91	93	65,366	718	10,023	110	55,343	608
Oklahoma	90	90	40,622	451	37,791	420	2,831	31
Oregon	8	8	3,550	444	3,196	400	354	44
Pennsylvania	83	83	95,160	1,147	7,516	91	87,644	1,056
Rhode Island	5	5	12,800	2,560	1,220	244	11,580	2,316
South Carolina	20	20	20,190	1,010	10,060	503	10,130	507
South Dakota	47	47	22,967	489	13,689	291	9,278	197
Tennessee	15	15	13,855	924	10,425	695	3,430	229
Texas	171	171	93,590	547	85,467	500	8,123	47
Vermont	29	29	28,186	972	875	30	27,311	942
Virginia	21	21	30,240	1,440	7,488	357	22,752	1,083
West Virginia	12	12	14,303	1,192	2,810	234	11,493	958
Wisconsin	116	116	61,396	529	13,378	115	48,018	414
Wyoming	6	6	1,985	330	1,000	167	985	164
Totals	2,537	2,572	1,932,065	762	746,814	294	1,155,251	455

processed . . . nearly two million customers are represented

1960 Gal. Sales	Dealers Reporting Sales	Average Sales Per Dealer	Average Sales Per Customer	Dealers With Storage	Storage Volume	Average Storage Per Dealer	Average Storage Per Customer	Dealers Selling Appliances	Percentage Selling Appliances
19,318,000	27	715,481	480	27	1,276,000	47,259	32	25	93
1,627,000	5	325,400	740	6	119,000	19,833	54	3	50
38,958,000	54	721,444	983	56	2,259,000	40,339	57	47	84
34,753,000	58	559,199	624	64	2,041,000	31,891	37	53	80
19,986,000	34	587,824	1,023	31	2,175,000	70,161	111	32	94
9,725,000	22	442,045	273	12	2,641,000	220,083	74	29	100
1,299,000	3	433,000	203	2	55,000	27,500	9	5	100
22,085,000	49	450,714	287	48	3,244,000	67,583	42	51	93
28,714,000	39	736,256	554	39	1,658,000	42,513	31	37	93
2,223,000	9	247,000	1,103	9	1,131,000	125,667	561	8	89
39,113,000	70	558,757	676	55	1,553,000	28,236	27	74	88
102,848,000	105	979,547	955	86	3,312,000	38,512	31	120	88
42,829,000	88	486,693	776	60	2,510,000	41,833	45	96	86
52,662,000	101	521,406	1,497	101	3,720,000	36,832	106	62	60
22,801,000	53	430,208	433	41	10,106,000	246,488	192	59	91
9,864,000	16	616,500	521	19	690,000	36,316	36	13	68
3,895,000	33	118,030	107	4	8,000	2,000	219	45	100
6,126,000	10	612,600	388	4	77,000	19,250	5	9	90
11,624,000	53	219,321	186	14	4,171,000	297,929	67	61	92
72,624,000	185	392,562	367	116	3,196,000	27,552	16	233	91
39,466,000	76	519,289	711	50	2,566,000	51,320	46	92	84
31,626,000	38	832,263	917	41	2,001,000	48,805	58	37	90
46,979,000	84	559,274	618	71	2,117,000	29,817	28	102	93
5,391,000	16	336,938	1,230	15	362,000	24,133	83	13	81
34,878,000	48	726,625	1,779	47	1,368,000	29,106	70	42	81
5,021,000	23	218,304	185	9	565,000	63,111	21	33	97
13,333,000	42	317,452	230	21	623,000	29,667	11	39	85
10,760,000	13	827,692	1,482	13	305,000	23,462	42	11	85
20,739,000	83	249,867	179	30	1,945,000	64,833	17	98	95
25,616,000	51	502,275	473	45	1,218,000	27,067	22	55	100
5,193,000	22	236,045	978	20	319,000	15,950	60	19	83
26,759,000	73	366,562	409	54	1,000,000	18,519	188	80	88
47,043,000	85	553,447	1,158	85	1,685,000	19,824	41	49	54
2,525,000	7	360,714	711	8	192,000	24,000	54	7	88
20,508,000	64	320,438	216	25	555,000	22,200	6	70	84
3,786,000	5	757,200	296	2	120,000	60,000	9	5	100
18,559,000	18	1,310,555	919	13	358,000	27,538	18	20	100
17,438,000	47	371,021	759	45	1,151,000	25,578	50	39	83
11,007,000	15	733,800	794	14	522,000	37,286	38	14	93
121,356,000	167	726,678	1,290	153	6,673,000	43,614	71	96	56
7,659,000	21	364,714	272	5	123,000	24,600	4	28	97
6,458,000	18	358,778	214	11	333,000	30,273	11	19	90
2,649,000	10	264,900	185	7	205,000	29,286	14	8	67
28,887,000	86	335,895	471	49	34,904,000	712,327	57	103	89
2,356,000	6	392,667	1,187	6	1,517,000	252,833	764	5	83
1,099,066,000	2,132	515,509	568	1,632	108,672,000	66,658	58	2,146	85

The BPN Census

A preliminary report on the state of Michigan

EVENTUALLY THE BPN CENSUS will provide a county-by-county picture of the industry. Each dealer is identified by a county code as well as a state code (no dealer is identified by name). Through the magic of data processing, we will be able to present figures on total number of customers per county, sales by county, volume of storage and all the other types of data that are shown by states on the previous pages.

At press-time, work on one state —Michigan—was nearing completion. Two-hundred fifty-five dealers had responded to our requests. These dealers serve a total of 197,630 customers. Their combined gallonage sales in 1960 totaled 72,624,000.

How large a percentage of the total dealers in the state is represented?

To answer that, we must find an accurate yardstick. The agency charged with the collection of gallonage sales statistics, the Bureau of Mines, reported that in 1959 domestic and commercial sales combined ran 88,530,000 gals. Internal combustion fuel sales hit 1,538,000. Putting the two together, we obtain a figure for dealer sales of 90,068,000 gal.

But that was 1959. What were actual sales figures in 1960? Since the Bureau of Mines report for last year will not be released until the end of the summer, we must use the 1959 figures and apply an estimated percentage increase figure. For this we turn to the 1960 Phillips Report (see BPN for January 1961, pages 36-44).

Nationally, according to the Phillips report, domestic-commercial sales increased 10 per cent, motor fuel sales 6 per cent. We can safely apply these percentages to Michigan's 1959 record if it appears probable that this one state has had a growth pattern typical of the U. S. as a whole. From 1958 to 1959, the record shows, it *was* fairly close to the national average.

Therefore, it is reasonable to estimate that total domestic-commercial sales were 97,893,000 gal., motor fuel were 1,620,000 gal., for a combined total of 99,003,000.

On this basis, the Census at this stage covers about 73 per cent of the industry in Michigan.

The county-by-county breakdown is shown on the opposite page. The numbers assigned are taken from a county code. Seventy-seven out of Michigan's 83 counties are represented.

Figures for the whole state are shown at the bottom of the table. If we wish to extrapolate them, we might assume that the above figure of 73 per cent is accurate, and apply the reciprocal. These, then, are the extrapolated figures:

Total customers: 270,725
Tank customers: 60,239
Cylinder customers: 210,486
Total storage: 4,378,100 gal.
Total dealers: 349
Total of dealers selling appliances: 319
Total number of plants: 396

Like the other states in the nation, Michigan presents some interesting and significant market facts. For one thing, there are about four-and-one-half cylinder customers for every tank customer. Thus there is a great deal of load growth still left in the state. This conclusion is substantiated by the gallonage-per-customer figure of 367, which is par or somewhat better for states having as high a ratio of cylinder customers-to-bulk. Storage averages 16 gal per customer. More than 9 out of every 10 dealers sell appliances—apparently another significant indicator.

The information obtained for Michigan—and other states—provides a statistical base for further studies. Through the application of other statistical "knowns" to these figures, we will be able to present the most complete analysis ever made of the industry. Such studies will be made, and presented, at various times in the future. Thus we hope will emerge a clear image of a complex, changing industry, one too long kept out of focus by the lack of clear statistical data. ■

A reprint of this article can be obtained by writing on company letterhead to the Editor, BUTANE-PROPANE *News*, 198 S. Alvarado St., Los Angeles 57, Cal.

Michigan, county by county . . . covering 197,630 customers

County	Dealers	Plants	Total Customers	Tank Customers	Cylinder Customers	1960 Gal. Sold	Dealers With Storage	Storage Volume	Dealers Selling Appliances
1	1	1	150	12	138	NA	NA	NA	1
5	5	6	5,922	1,635	4,287	880,000	3	74,000	4
7	2	2	1,760	1,200	560	904,000	2	48,000	1
11	2	2	460	4	456	NA	NA	NA	2
13	1	1	2,000	800	1,200	667,000	1	60,000	1
15	3	3	1,580	230	1,350	483,000	1	18,000	3
17	2	2	2,761	1,051	1,710	2,073,000	2	66,000	2
19	1	1	204	4	200	NA	NA	NA	1
21	7	8	4,800	1,583	3,217	3,114,000	3	87,000	6
23	2	2	2,222	522	1,700	1,403,000	1	66,000	2
25	4	4	3,450	290	3,160	1,430,000	3	65,000	4
27	4	4	3,300	1,550	1,750	432,000	2	38,000	4
29	2	2	2,500	NA	2,500	272,000	NA	NA	2
31	2	2	2,713	92	2,621	756,000	1	1,000	2
33	5	7	8,340	1,256	7,084	1,552,000	4	83,000	5
35	3	3	875	229	646	382,000	2	13,000	3
37	5	5	1,780	515	1,265	503,000	2	60,000	4
39	1	1	1,800	850	950	386,000	1	30,000	1
41	3	4	6,900	1,525	5,375	3,000,000	2	108,000	3
43	1	1	2,640	340	2,300	1,000,000	1	30,000	1
47	4	4	2,640	683	1,957	1,268,000	1	42,000	4
49	7	8	6,750	1,170	5,580	2,888,000	2	96,000	6
51	1	1	600	NA	600	20,000	NA	NA	1
53	2	2	385	NA	385	22,000	NA	NA	1
55	1	1	2,500	500	2,000	1,250,000	1	30,000	1
57	4	4	2,630	770	1,860	1,180,000	2	60,000	4
59	4	4	2,070	20	2,050	322,000	1	18,000	4
61	3	5	6,500	3,200	3,300	2,966,000	3	222,000	3
63	4	5	2,465	900	1,565	1,698,000	2	75,000	4
65	3	3	975	270	705	568,000	1	29,000	3
67	2	3	1,900	300	1,600	770,000	2	49,000	2
69	4	4	2,740	1,440	1,300	1,366,000	1	30,000	4
71	2	2	850	260	590	216,000	1	36,000	2
73	1	1	490	20	470	NA	NA	NA	1
75	4	4	3,560	875	2,685	2,668,000	3	62,000	4
77	5	5	4,859	1,500	3,359	118,000	1	30,000	3
79	2	2	700	100	600	190,000	1	12,000	2
81	8	9	6,358	1,558	4,800	586,000	4	52,000	6
87	1	1	600	NA	600	NA	NA	NA	NA
91	6	6	5,100	793	4,307	1,950,000	4	67,000	6
93	3	3	1,093	248	845	465,000	1	30,000	3
95	2	2	1,840	140	1,700	620,000	1	30,000	2
97	2	2	1,595	215	1,380	900,000	1	30,000	2
99	3	3	1,850	287	1,563	755,000	2	90,000	3
101	2	2	494	4	490	10,000	NA	NA	1
103	2	5	8,000	1,250	6,750	3,500,000	2	165,000	2
105	4	6	2,560	150	2,410	353,000	2	48,000	3
107	2	2	1,600	458	1,142	775,000	1	40,000	2
109	3	6	4,908	1,339	3,569	3,300,000	2	180,000	3
111	1	1	580	NA	580	46,000	NA	NA	1
113	2	2	500	330	170	35,000	NA	NA	2
115	4	4	1,700	501	1,199	1,262,000	2	39,000	3
117	4	4	2,950	225	2,725	860,000	1	18,000	4
119	3	3	1,116	6	1,110	58,000	1	2,000	3
121	5	5	4,642	647	3,995	3,489,000	2	31,000	5
123	5	5	1,810	150	1,660	362,000	3	16,000	5
125	4	4	3,250	300	2,950	1,260,000	3	32,000	3
127	4	5	4,300	754	3,546	919,000	2	20,000	4
129	2	2	1,557	432	1,125	668,000	2	43,000	2
131	1	1	605	130	475	300,000	1	36,000	1
133	1	1	800	NA	800	94,000	NA	NA	NA
135	1	1	500	NA	500	NA	NA	NA	1
137	2	2	1,250	320	930	850,000	1	30,000	2
139	8	8	5,550	1,224	4,326	2,071,000	4	80,000	7
141	2	2	700	NA	700	42,000	NA	NA	2
143	1	1	2,174	824	1,350	1,400,000	1	30,000	1
145	5	5	3,125	55	3,070	378,000	1	18,000	5
147	6	7	2,207	200	2,007	465,000	2	48,000	6
149	7	8	3,090	515	2,575	1,075,000	2	41,000	6
151	7	8	2,670	680	1,990	1,372,000	3	70,000	7
153	3	3	3,200	661	2,539	1,317,000	2	78,000	3
155	5	5	950	NA	950	92,000	1	2,000	3
157	10	10	3,770	836	2,934	1,869,000	5	109,000	10
159	5	5	4,450	1,520	2,930	103,000	1	30,000	4
161	4	5	1,925	657	1,268	1,309,000	2	39,000	4
163	4	4	2,500	730	1,770	877,000	1	14,000	3
165	2	2	990	140	850	90,000	NA	NA	2
Totals	255	279	197,630	43,975	153,655	72,624,000	116	3,196,000	233

NA—Not Available.

Are you selling $100,000 worth of appliances per year? Then it might pay you to set up your own company to handle the contracts.

How to set up your own finance company

ROBERT H. BROWN

BACK IN 1959, Kingsley Weatherly of Stone Mountain, Ga., decided to establish a finance company to carry the paper on appliances sold by his three LPG businesses, National Utilities, De Kalb Gas, and Howell Gas. Serving some 2000 customers in eight northern Georgia communities, the LPG firms did a tremendous job of selling appliances. But they were handicapped because they dealt with a confusing variety of financing institutions, each with different interest rates, operating procedures, credit policies, etc.

Fortunately, Weatherly's 13 years in the LPG industry were backed up by 26 years of appliance selling and augmented by a banking background. Since he is a director of his local bank and is on its loan committee, he already knew a great deal about financing.

The finance company Weatherly formed, Purchasers' Discount Corp., has always been a separate corporation. Its headquarters are also in Stone Mountain, which is on the outskirts of Atlanta. The idea behind Purchasers' Discount was to set up an organization that would transact business with the eight LPG and appliance outlets in the same manner as would any other single finance company. The company would accept the sales contracts of the retail outlets as collateral and reimburse them, just as an auto finance firm would deal with a car dealer.

But before a LPG dealer can set up a separate finance company,

Kingsley Weatherly

Many dealers have expressed an interest in the proper procedures for setting up and handling installment accounts for appliances.

Some have already started handling their own appliance paper, along with other receivables. But in many cases, as volume increased, they began to run into difficulties caused by having two systems in one: either they were faced with abnormal past due installment accounts, or they were forced to employ additional personnel.

After receiving a number of inquiries on the matter, BPN recently decided to find out how a successful dealer-finance company runs. It selected Kingsley Weatherly's finance company, mentioned briefly in "How does Kingsley Weatherly 'sell' his salesmen to sell his appliances?" in the December, 1959, issue.

But before a BPN correspondent called on Weatherly, the Stone Mountain, Ga., dealer sold his three LPG firms to Suburban Gas of Pomona, Calif. The finance company, however, was not sold. So at our request, Weatherly agreed to provide the details on its operation.

A BPN Exclusive

there are a number of problems to be solved.

"The first problem is, naturally, money," says Weatherly. "It's always a problem."

One must be assured of a sustained supply of money in order to be able to move merchandise in volume and without fear of having to curtail operations at some future date. To assure this sustained supply, every possible source should be explored.

When a retailer wants to find an outlet for his appliance paper, usually he can readily do so. Local financial institutions, such as banks and loan companies, seek this type of paper. Many banks have expanded their activities in this field and go out after the small loan business in an aggressive, progressive manner.

But when a dealer decides to set up his own finance company and when he starts looking for money to "finance the finance company," the picture changes. Local lending institutions aggressively seeking small loans are understandably not very keen about helping set up a competing firm.

And, Weatherly found, even the banks that weren't financing individual appliances weren't very receptive to the idea of supplying money for his finance company.

"In many cases, banks are reluctant to make loans of large sums of money for approximately 2½ years, the time involved in so many installment contracts. Banks desire loans they can call in or, at least, short-term paper. Installment buying just doesn't come in that category."

Past experience with banks had given him an additional reason for looking elsewhere for money. The availability of bank money, he found, too often depends upon the fluctuations of money markets. When money was more plentiful, banks were willing to offer it. But when money became tight and more people had to buy appliances on credit, banks were not always willing to lend. Weatherly recalls several times when a tight money situation "virtually cut off installment credit."

To prevent this from happening, Weatherly decided to seek the services of a factoring company, a form of business that makes money by supplying money. Really a money agent, a factor acts as a go-between between large money sources and firms needing money.

Factoring terms "re-discount," "buy," or "accept" paper at a rate of, perhaps, 75 cents on a dollar. Actually, these terms are somewhat misleading, since the factor does not normally take possession of any loan paper; he merely "accepts" it as collateral for a loan. And that loan would amount to 75 cents for every dollar of collateral the borrower can put up.

To quote a theoretical example, a dealer's finance company may have appliance contracts with a total face value of $100,000 in its safe. Needing more money, the finance company bundles these contracts into a brief case and takes them to a factor. Agreeing that the contracts are worth $100,000, the factor may then lend 75 cents on a dollar, or $75,000. The finance company and the factor must then negotiate both an interest rate and a payment schedule. The interest rate, determined in large part by the finance company's credit rating, is usually set between 4 and 8 per cent.

A trust receipt is then prepared, showing that the finance company has in its possession contracts with dealers amounting to $100,000, and that therefore it is in a position to deliver a trust receipt for that amount to the factor. The contracts, however, are retained by the finance company.

Payments by the finance company to the factor are made against the trust receipt and, according to the agreed-upon schedule, total perhaps

Rules to follow in establishing and operating a finance company

Weatherly feels his experiences in setting up a finance company can be summed up in eight rules:

1. You should have an annual appliance volume of at least $100,000 before you consider setting up your own finance company. With a smaller volume, bookkeeping, collections, and other expenses can offset the advantages.
2. It is absolutely necessary that you have a sustained supply of money—if you are to move merchandise in steady volume.
3. Be sure to operate the finance company as a separate and distinct business. Do not be influenced by the fact that the retail operation and the finance company have common ownership. Too often, a dealer is inclined to be lenient with a doubtful credit risk in order to get the additional load or the appliance sale. A dealer-owned finance company must be guided by the same hard rules as any other loan firm.
4. Be sure you have an expert accountant and set up a simplified bookkeeping system to provide the most efficient operation at the lowest possible cost. Consult the business systems people with whom you do business.
5. Screen credit applications thoroughly, think twice about accepting marginal applications, and—if you accept them—keep the account in the retail operation. Do not pass it on to the finance company or use it as collateral to obtain additional funds, since repossession then becomes much more involved.
6. Do not discount a contract—that is, turn it over to the finance company—until the customer has made the down payment and the appliance has been installed. (Too many times, a customer changes his mind before the installation is made.) Once the contract has been signed and the credit okayed, make the installation as soon as possible.
7. Follow past due accounts relentlessly and pick up merchandise as soon as it has been determined that an account is a true repossession.
8. Last, but certainly not least, since money is the inventory of a finance company, keep all of it working and do not pay interest on money you're not using.

Finance company

$1000 to $5000 per month.

Should the finance company be unable to make payments on schedule, the factor may ask for and receive the assets held in trust. In the example quoted here, that would be the contracts worth $100,000. The factor could then convert these contracts into cash or handle them as he sees fit.

Weatherly sums up this phase of the project with disarming simplicity:

"Having exhausted all local possibilities for financing, I went to New York and made a connection with a large factoring concern. These people agreed to handle the paper of our Georgia finance company at 75 cents on the dollar."

Purchasers' Discount Corp. was founded in February, 1959. Weatherly kept the system as simple as possible to avoid the confusion of the past. Before he opened up the finance business, he and his auditor visited many similar companies in various fields. After a thorough study of each company's system, he decided on the Remington - Rand set-up for his own operation.

Weatherly made sure that his finance company worked closely with his retail operation. When one of the eight establishments sold an appliance, the manager of that operation would immediately submit a written credit report to his local credit bureau. This report was then forwarded to Purchasers' Discount, where it was either approved or disapproved. Installation of the appliance was never made until Purchasers' Discount approved the contract and notified the dealer of the approval. The sales contract was then endorsed by the dealer and forwarded to the finance company, which mailed a check to the dealer.

Actually, the retailer-finance company transaction can be handled in two different ways, depending upon local conditions and practices and the desires of the interested parties.

In one way, the retail operation operates very much like the finance company does when it deals with the factor. It retains the contracts and holds the title to the merchandise until it is paid for. Thus, for example, the retail operation may have title-retention contracts amounting to a total of $1000 and may merely use them as collateral, borrowing 75 cents on the dollar, or a total of $750 and paying the finance company an agreed rate of interest.

In the second way, the retail operation actually sells the contract to the finance company and has nothing further to do with it. A customer, for example, buys a $100 item and gives the retailer a $25 down payment. Thus, the amount of the installment contract is $75, the balance due. The retailer may sell this contract to the finance company at a negotiated price, which will depend upon several things, including the credit rating of the individual making the purchase. A typical price for this example would be $65, or $10 less than the balance due. This $10 "discount" is the finance company's profit and explains why such companies are frequently called "discount companies" and why their transactions with a factor are sometimes called "rediscounting." This $10, of course, comes out of the retailer's mark-up.

Purchasers' Discount operates in the second way. When the retailer turns the contract over, the finance company sends the customer a letter telling him it now has the contract.

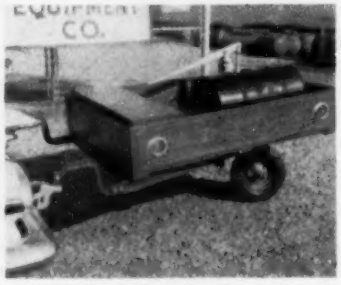
However, while payments are made in the name of Purchasers' Discount, Weatherly did not overlook the well-known advantage of having customers come in to make payments.

"When a customer visits the store to make 24 to 30 payments, he will probably buy another appliance during one of these visits."

To bring the customers back regularly, Weatherly designed and printed coupon books, which are mailed to the customer along with a letter telling him he may make payments at the store where the appliance was purchased.

Should an account become delinquent, a series of form letters prepared by Weatherly are sent out. Ranging from a mild request to a hard-boiled demand, they are sent automatically in sequence. Since each letter in the series has a number, notations are easily made on file cards. If the last letter has not produced payment, a personal collection program is started.

In case of a repossession, the retail operation picks up the merchandise and issues a check to Purchasers' Discount for the time balance of the contract, less the rebate. It is then up to the retail operation to dispose of the appliance. ■



This simple, inexpensive rig is on call to test hoses for dealers throughout Oklahoma.

Simple trailer rig used to test hoses

When Oklahoma dealers need their fuel delivery hose tested, they don't have to leave their premises. The test equipment comes to them.

The State Liquefied Petroleum Gas Administration is now using a mobile hose testing assembly, mounted on a trailer so that it can be sent anywhere in Oklahoma.

The assembly was devised by the administration. Mounted on a little one-wheel trailer with a universal hitch that will fit any bumper, it consists of a 15-gal steel drum for water storage, a hydraulic liquid hand pump, and a tool box containing tools and an assortment of fittings. The fittings are sized to enable the unit to test any size hose from ¾-in. to 2-in.

The hand pump is capable of exerting very high pressures. It is equipped with a 400-psi pressure gauge and a relief valve set at 375 psi, the test pressure.

According to State LPG Administrator C. Chester Pate, as soon as possible after a call is received from a dealer, one of the state inspectors hooks the trailer to his car and is off to test the questionable hose.

NEW

FROM

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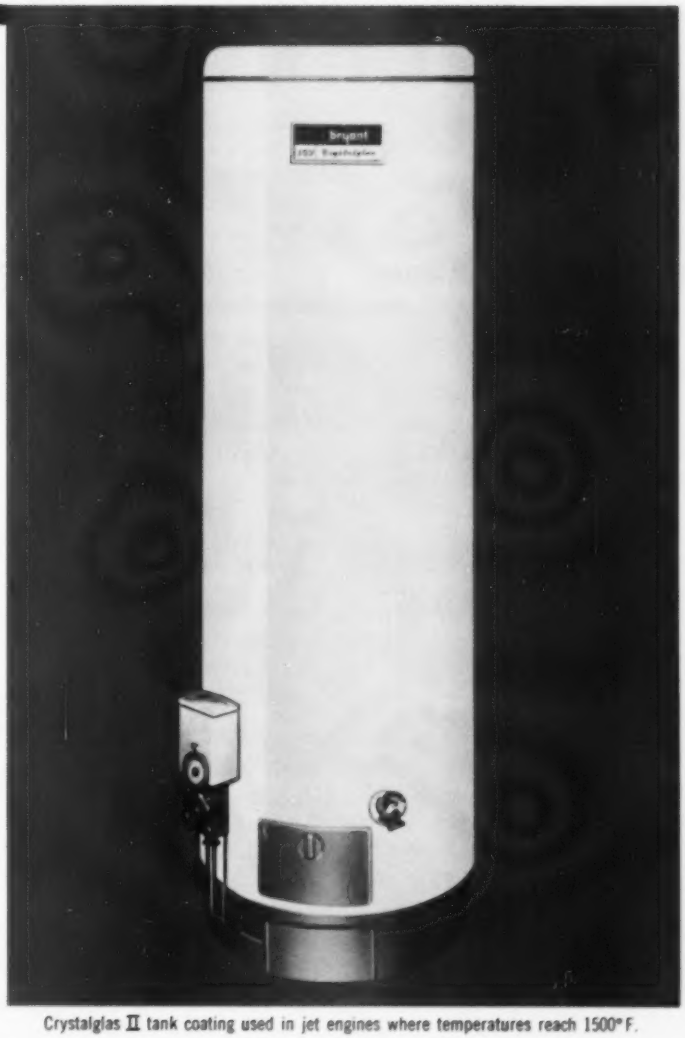
WATER HEATER

WITH

CRYSTALGLAS II

ENDS COSTLY CHANGEOUTS IN WARRANTY



Crystalglas II tank coating used in jet engines where temperatures reach 1500° F.

SELL THE HEATER DESIGNED TO

OUTLAST ITS WARRANTY

Whose pocketbook says "Ouch!" when a heater you've installed fails in warranty? Yours! All the torture and extended time tests Bryant research men could dream up proved beyond a doubt that the Bryant Crystalglas II water heater will last twice-as-long as ordinary glass-lined units. Your profit is protected on every job.

HERE IS THE INSIDE STORY

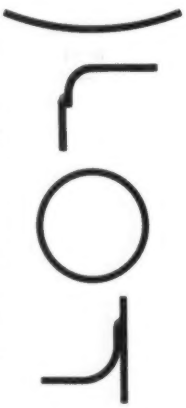
of a tank that is *engineered for glass.* No more glass failure due to expansion and contraction... no more glass breakage due to welding, obsolete design or rough handling.

PLANISHED SIDE SEAMS provide perfect surface for glass lining. No rough spots.

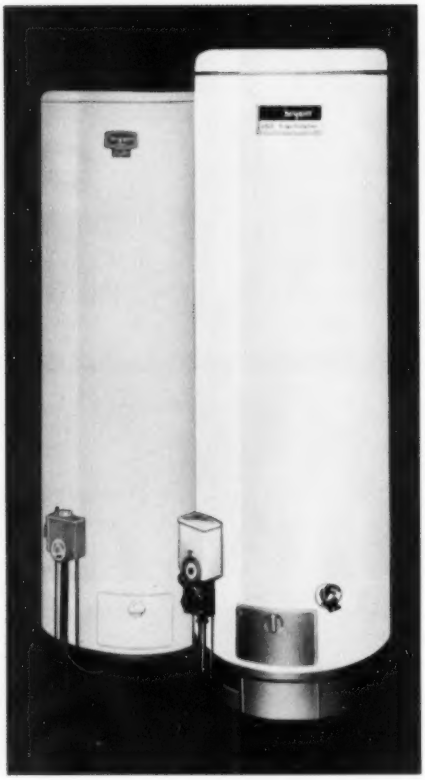
ONLY ¼" HEAD STUB inside shell eliminates "lever action" that can break glass lining.

PERFECT ROUNDNESS. No "flutes" or "flats" to crack glass as pressure changes.

DEEP-DRAW HEAD for insertion of flue provides sufficient flat to prevent glass burn-off during welding.



For complete details on pricing, features, delivery, etc., call our local distributor or factory branch. Bryant Manufacturing Company, Indianapolis 7, Indiana.



BUDGET TO DELUXE MODELS

MODEL 155. Value and quality for modest budgets. 20-30-40 gallons. 10-year (5-5) warranty.

MODEL 156. Top quality and value. 20-30-40-50-70-100 gallons. 10-year (5-5) warranty.

MODEL 157. For high volume usage. High recovery. 30-gallon will do work of most 50-gallon heaters. 30-40-50 gallons. 15-year (7½-7½) warranty.

Join up with

bryant

the company on the move!!!!!

Bryant Manufacturing Company • Indianapolis 7, Indiana

Air view of Gas Butano-Propano plant, S. A. Two 30,000 gal storage tanks and the cylinder-filling dock are in foreground. Automotive service, warehouse and LPG equipment repair building are shown in upper portion.

Tijuana's plant-on-the-mesa is tops in safety, efficiency . . . and elevation.

Gas Butano-Propano moves to "high ground"

A BPN Exclusive

THELMA LUXON

SENOR ALFONSO BUSTAMANTE HAD PROBLEMS.

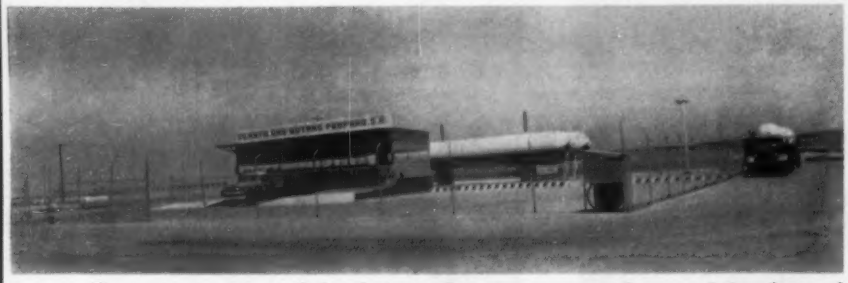
His Gas Butano-Propano bulk plant at Tijuana, Baja California, Mexico, was beginning to pinch. Business was growing at a rapid rate. He was running 30 bulk and cylinder trucks, delivering gas to some 16,000 customers. Service was being maintained for 24 hours a day, with at least two cylinder delivery trucks being kept on the streets of Tijuana all night, so that they could be radio-dispatched to answer a customer's call within a matter of minutes. His work force had grown to 95 persons.

But the plant, located in the heart of the border city, was hardly able to cope with the growth. Hemmed in on all sides, it had no room to expand.

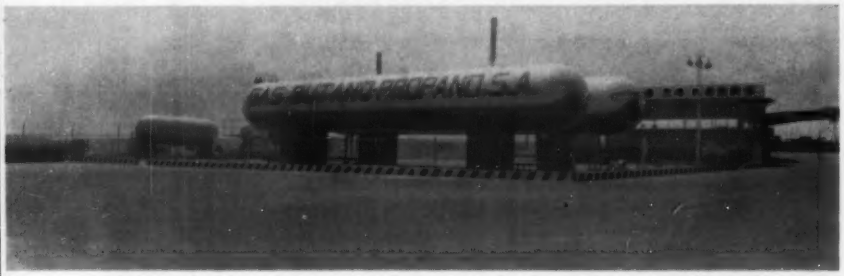
So Sr. Bustamante decided to move out of town, and while he was at it, to build an entirely new plant incorporating the optimum in safety, efficiency, and rapid fuel transfer.

Sr. Bustamante has long been noted for the outstanding design and operating efficiency of his plants. He's a leading supplier of LPG along the Mexican border, and owns plants in Mexicali and Ensenada as well as Tijuana.

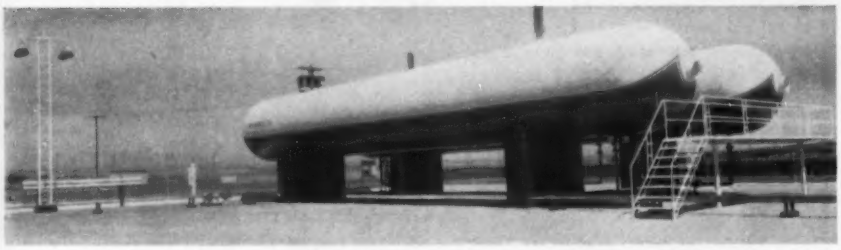
His knowledge of the business led him to select a mesa about a mile east of town for his plant site. Besides being spacious, the mesa offered other advantages. It is high, with the ground sloping off in such a way that prevailing winds will disperse any gas that might leak out. The mesa ("table land")



The open arrangement of the plant provides easy access to all areas of the plant and equipment. The 100 lb dry-chemical fire extinguisher, housed on a two-wheel carriage, is located in the right hand corner of the enclosed fence for emergencies.



Each storage tank has two 3-in. outlets connected into the 4-in. line. The tanks are set about 5 ft above ground, and the 4-in. line slopes downward to the pump, following the natural contour of the land.



A substantial stair-and-walkway provides safe and easy reading of the gauging devices on the tanks. Light standards are tied together with "ladder rungs" to strengthen standards and provide easy access for light maintenance.

is cut off on three sides by a cliff and a canyon, which effectively isolate the plant; yet a good road through the canyon makes it readily accessible.

Added up, these features spell safety, as can be seen in the overall view of the plant shown from the air.

On this new location, Mr. Bustamante decided to build an entirely new plant, so he dismantled the former Tijuana plant and moved the tanks from it to Ensenada.

To transfer fuel between transports and storage, a Smith Model MC-4 pump, with a 150-gallon rated capacity, was selected. It also transfers the fuel from storage to the delivery trucks. The pump will move fluid in either direction, simply by reversing its direction of rotation. This is accomplished by wiring the motor through two magnetic starters and a reversing start and stop switch; this arrangement saves installation of a lot of complicated piping and valving, as the pump can be placed in the direct pipeline between the transfer station and the storage tanks.

A four-in. liquid line was installed between the storage tanks and the unloading station with four-in. strainers on both sides of the pump, also, two 2-in. liquid hose lines and two 1-in. vapor hose lines are used as connections for the truck and trailer tanks, so that both units can be connected simultaneously.

Each storage tank has two three-in. outlets connected into the four-in. line. Both of these openings in the tank are fitted with a three-in. excess flow valve and a three-in. Okadee gate valve. These valves are fitted with a spring which, when released, automatically closes them. The tanks are set about five feet above ground, and the four-in. line slopes downward to the pump, following the natural downward contour of the land.

The cylinder-filling dock is designed to promote a smooth, efficient handling of the cylinders. They can be unloaded at one side of the dock, placed on the scales and filled at the rear center, then moved to the opposite side of the dock where they are loaded onto the delivery trucks. To expedite service and save on mileage, all the cylinder delivery trucks are radio dispatched.

The delivery truck beds are of two heights and, to accommodate them, the dock has been depressed at two locations to serve the high-bed trucks, and left at grade level, otherwise, for the low-bed trucks. Four scales, with a four-station automatic cylinder filling manifold, are used to fill the cylinders.

The liquid is pumped to a separate delivery truck filling station which is located between the storage tanks and the dock, and also to the cylinder filling station, and into the cylinders themselves by means of an MC-2 pump. The outlets from the storage tanks are three-in. with three-in. excess flow valves and three-in. Okadee valves, and a three-in. liquid line joins them to the pump inlet. There is a two-in. line from the pump to the cylinder filling station and the delivery truck filling station.

The piping at both transfer stations, where hose is connected to the delivery truck tanks, is securely anchored to heavy concrete bulkheads. Valves which have low pressure-drop characteristics have been used in all lines connecting to the

inlet side of the pump.

Senor Humbert Gonzales is the genial, capable manager of this plant and he acted as construction supervisor during the installation period. He made certain that all lines were free of low spots and pockets and, insofar as possible, that they sloped downward to the pump inlets. All the piping and miscellaneous construction was done by Gas Butano-Propano's own crews, including certified welders and pipe fitters from the company's utility plant in Mexicali.

Gonzales had 20-ft lengths of irrigation pipe placed at each transfer station to store the transfer hose when it is not in use, and to protect it from the sun. This is an ingenious, unusual arrangement, and consequently, hose, at this plant, is never permitted to lie on the ground between deliveries.

The bulk plant had been in operation around 30 months when the pictures were taken.

On the average, according to Mr. Gonzales, they unload two truck-and-trailer loads of fuel, (approximately 9000 gals. each), into storage daily. This amount of fuel is transferred into the storage tanks in a little over 45 minutes, and the monthly transference into storage is in the neighborhood of 380,000 gallons. They also transfer fuel from storage into delivery trucks and transports which haul it to Ensenada. This totals about 150,000 gallons per month and this gallonage is pumped back through the same pump that originally delivered the fuel into storage. During the 30 months of operation, over 15 million gallons of fuel have passed through one MC-4 pump and the pump has neither required any maintenance nor repairs during this period of time.

The MC-2 pump has an equally fine record because it pumps many gallons for cylinder filling, returning the excess fuel into storage through the by-pass relief valve. In an average month 6300 one hundred lb. cylinders and 450 two hundred lb. cylinders are filled with the MC-2, and about 60,000 gals. are pumped through it into bulk tanks and trucks. Monthly, this adds up to 230,000 gals., and averages around 7 million gals. for the 30-month period. Again, there have been no repair costs for this pump.

The service garage and the maintenance shop are located adjacent to the bulk plant for easy operation, and the entire operating area inside of the fence has been blacktopped. The whole plant, including the rolling stock, has been painted a snappy gold and white. There are two 30,000 gal. storage tanks, and plenty of space for additional tanks in the future. Gas Butano-Propano gives 24-hour service, and it is well lighted at night. Speaking of lighting, may I direct your attention to another clever idea, the permanent service ladders leading to the lights? They are an integral part of the light standards, always at when a bulb goes out.

From a purely feminine viewpoint, the general housekeeping at this plant is excellent. This probably spells safety to a male, but to a woman, it means that her confidence in the dealer is not misplaced. This is rather important to the trade, since the ultimate LPG user in the home is the little woman. Gas Butano-Propano people do not forget this angle. ■

The transport unloading station is also used to fill delivery trucks and a transport which hauls fuel to a plant at Ensenada. A switch arrangement of the pump allows direction of motor rotation to be reversed.

The piping runs between storage tanks, to pump, to transfer station for filling, and then to cylinder filling dock. The hose is stored in the horizontal irrigation pipes. A bulkhead is used to secure the piping at the main transfer station.

The empty cylinders are unloaded at right end, moved on to scales at center, and when filled, are moved to left side, then to delivery trucks. A four-station manifold automatically stops the flow into each cylinder when filled.

When cold weather sets in at the farrowing house on the Schleeper farm, LPG-fired radiant heat keeps the air temperature at a healthful 55 deg., at a cost of only $1 a day.

Electric heat was costing farmer Schleeper $4 a day but doing an inadequate job. Then an alert dealer stepped in to help him find a way to cut costs, increase production.

How to beat the kilowatters to the pig pen

ARTHUR G. NORRIS

A BPN Exclusive

BY COOPERATING WITH A PROGRESSIVE YOUNG FARMER to solve the technical problems of keeping sows and pigs warm during the farrowing period, an alert LPG dealer has obtained a substantial load increase.

What's more, the final result of the farmer's experiments has attracted so much attention and favorable comment that the dealer is virtually certain of supplying gas for similar installations that will be built in his area.

The dealer is Albert G. Plagmann, whose headquarters are in Hardin, Ill. Plagmann is vice president and manager of the Illinois division of Red-E-Gas Co., St. Louis county, Mo. The farmer is Alfred G. Schleeper, who operates what is strictly an "LPG farm" near Hardin.

For several years, the two Als, Albert and Alfred, worked together on the problem of heating pigs, first in brooders, later in a farrowing house. Schleeper wanted to reduce pig losses to the minimum, bringing the largest possible number to the weaning stage, after which, barring accident or epidemic, they are virtually certain to reach the market. Plagmann was anxious to help a good customer and to prove that LPG could do the job best.

Before the experiments began, Schleeper was using brooders heated with electric heat lamps. He was not only paying $4 per day for heating during sub-freezing weather, but he was losing an average of five pigs out of every 12-pig litter.

For their first experiment, the two Als tried comparatively small farrowing houses out in the field. Holding 12 sows each, these houses were heated with salamanders ranging in size from 50,000 Btu to 150,000 Btu. Average heating costs were cut in half, to $2 per day. But pig losses, Schleeper's major concern, were not cut.

Schleeper sought the advice of the experts at the Farm Bureau and Extension Service of the University of Illinois College of Agriculture. After studying projected costs and comparing them with projected profits, he decided to "go all the way" via a new, good-sized pig farrowing house with radiant heating in the floor.

Now, after the first full year

Interior of farrowing house, showing some of the metal farrowing crates, low ceiling, unheated walkways and gutters. The crates hold a total of 32 sows.

BULLETIN:

15,000,000 gallons of Propane under this "Christmas Tree" plus millions more in four other giant caverns guarantee Shell distributors a year-round supply

Shell backs up its Propane distributors with a vast interconnected supply network.

It includes: Five great man-made storage caverns. Over 20 Propane-producing plants. Millions of barrels of petroleum in underground reserve. Pipelines, tank cars and transports that crisscross the nation.

Read what this means to Shell Propane Distributors—and its possible significance to you.

AN ASSURED source of supply is an absolute "must" for any LP-Gas distributor.

That's why Shell backs up its distributors with one of the most carefully planned supply networks in the business.

Four facts give some idea of its scope—and significance to you.

Consider these facts

1. Shell draws propane gas from a network of over 20 producing plants.

2. Shell holds millions of gallons of Propane in reserve—stored in mammoth, man-made caverns. These caverns, five in all, are strategically located to serve the areas where Shell Propane is sold.

3. Shell has thousands of producing wells to draw from. Propane comes from petroleum and natural gas. And Shell's underground petroleum reserves are conservatively estimated in the millions of barrels.

This "Christmas Tree" marks a huge subterranean salt dome in Denver City, Texas—where Shell stores 15,000,000 gallons of Propane. Seventy miles away—in Notrees, Texas—another giant cavern holds 6,000,000 gallons.

4. Through integrated pipelines, tank cars and transports, Shell can meet its distributors' needs anywhere in the U.S.A. Shell distributors don't suffer from "shortage headaches."

Contact a Shell Representative

These four facts provide a solid framework for distributor profit. They show why Shell distributors *stay* with Shell—and why so many others are switching to Shell.

A Shell Representative will be glad to discuss LP-Gas with you. Contact the nearest Shell office, or write: Shell Oil Company, 50 West 50th Street, New York 20, N. Y.

SHELL

A BULLETIN FROM SHELL
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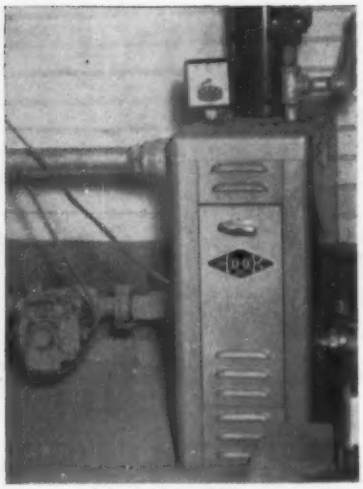


Source of heat for the farrowing house is the 70,000-BTU boiler. The pump shown sends hot water through 8000 ft. of pipe in the farrowing house slab.

of operation of the new facility, Schleeper is able to assess the results. They are highly pleasing and offer hope for improvement. Here's what happened:

1. Higher standards of pig breeding raised the number in each litter to 13 and better heating has saved an average of 9½ from each litter.
2. Because more feed was going into body building and less into keeping the animals warm, Schleeper has been able to reduce the feed cost per pound of pork from 11½ cents to 10 cents.
3. The average daily cost of heating in sub-freezing weather was again halved, to $1.

Schleeper traces these results directly to his new farrowing house and agrees with Plagmann that the only possible fuel is LPG. Any other would be too expensive.

Let's take a closer look at that farrowing house. Of standard frame construction, it measures 48 ft by 42 ft. Wall and ceiling insulation consists of 2-in. rockwool with aluminum foil on both sides. Following the college's recommendations, the interior ceiling height is kept to 7 ft, with 2½ ft of air space under the peak of the galvanized sheet roofing. Six stationary plastic skylights provide daylight and completely screened dual-vent windows provide air.

The house contains 32 metal farrowing crates, each holding one sow and up to 13 little pigs. The pigs are kept in a separate compartment of the crate to prevent the sow from stepping or lying on them Close to 450 animals might be in the house together.

The most important detail of the construction was the floor. First came 2 in. of crushed rock, well-tamped. This was covered with heavy roofing paper, the joints of which were sealed. On top of this, Schleeper poured 4½ in. of concrete.

The heating coils imbedded in the concrete consist of 800 ft of ¾-in. plastic pipe. Laid parallel to the long sides of the house, the coils are 14 in. apart, but run only under the crates, not under the walkways or gutters. Hot water from a 70,000-Btu LPG-fired boiler is pumped through the system by a ⅛-hp pump. A 20-gal expansion tank is included in the system.

Schleeper based his heating system on data supplied by the college experts. He gets a bang out of their exactness.

"They figure everything," he says. "They take into account the heat of the sow's bodies, even the heat from the shoats (young pigs). They told me this system would maintain a temperature of 55 deg in the house when it is zero outside. It does that, but it won't do a degree more!"

One problem Schleeper did *not* have was supplying LPG to the farrowing house. In addition to the bulk tank located at his house to serve household needs, Schleeper has a 500-gal tank mounted on a two-wheel trailer. When field work is heavy, he tows this trailer out into the fields and fuels his LPG-powered tractors on the job. In the fall, the tank is hooked up to his corn-drying rig. And now it spends the winter alongside the farrowing house boiler room.

Schleeper emphasizes that the LPG-supplied heat in his farrowing house has much to do with his successful hog-breeding operations and the profits derived therefrom. Very happy that the number of pigs saved from each litter has jumped from 7 to 9½, he smilingly adds that this is close to perfection, since a sow is physically equipped to support just 10 pigs!

A primer

HOUSING AND EQUIPMENT FOR FARROWING HOGS are quite varied, but successful hog raisers have adopted many of the same practices.

Farrowing is done either in the field or at the farmstead—with considerable advantages in favor of the latter. Many hog raisers use movable buildings, including both individual and multiple-sow houses. However, farrowing stalls are becoming popular because they save space and because they protect the pigs from the sow. And with farrowing stalls, there is a trend toward either multiple-unit houses or permanent central farrowing houses. Favoring the latter is the practice of multiple farrowings throughout the year, making a central farrowing house more economically feasible.

For the circular from which this primer was written, authors E. L. Hansen and Arthur J. Muehling of the University of Illinois staff studied 40 new central farrowing houses in northern Illinois. Of these, 38 had some type of heating and 19 of the 38 used hot water circulated in pipes in the floor. Some of these also had stoves or space heaters for supplementary use during extremely cold spells.

When designing a floor panel heating system, first ascertain that the principles of good construction have been followed. This is especially important with the floor.

A 6-in. gravel or crushed rock fill should be laid under the floor. Cinders or other corrosive fill should not be used. A vapor proof membrane, either a plastic film or 45-lb asphalt roofing with laps sealed, should be placed over the fill. Over this, a 4-in. concrete floor should be laid in one pour. While insulation is not needed under the floor, there should be a waterproof border insulation between the edge of the floor

on hog heating

*How to plan and lay out a system, and how to size it for maximum efficiency and lowest cost**

and the foundation. Of either waterproofed rigid fiberglass panels or styrofoam, it should be at least 1 in. thick and extend down a minimum of 24 in. On top of this, a tar joint is made between the wall and the floor.

The coils must be installed before the floor is laid. Use ¾-in. wrought iron, black iron, or copper pipe. Galvanized pipe is not recommended. No coil should be longer than 200 ft. The coils should extend to about 6 in. from the edge of the slab. Spacing between them should be about 12 in. The entire system should be tested at 100 psi for 4 hours before it is connected to the boiler or before it is concealed. The coils should be covered with at least 2 in. of concrete to prevent hairline cracks in the concrete.

With the coils installed in this fashion, it should be possible to maintain a surface floor temperature of 85 deg. with 120 deg. water and an input of 50 Btu per hr per ft of pipe. (Thus, to find the size of the heating unit needed, multiply the coil footage by 50.) A boiler with a net rating equal to or exceeding the calculated figure should be selected. A 30-gal., 24,000 Btu, gas-fired domestic water heater is commonly used for small buildings. A circulating pump is needed and it must pump 1 gpm for each 10,000 Btuh. (The capacity of the pump, therefore, is determined by dividing the total Btu input by 10,000.) An air cushion tank is also needed. If you choose a closed tank, allow 1 gal. of tank capacity for each 5000 Btuh. With an open tank, allow 1 gal. for each 10,000 Btuh.

While this floor panel system will keep the floor warm enough, it may not be able to keep the air at the recommended 50 to 55 deg. when the outside temperature drops extremely low. There are three reasons for this:

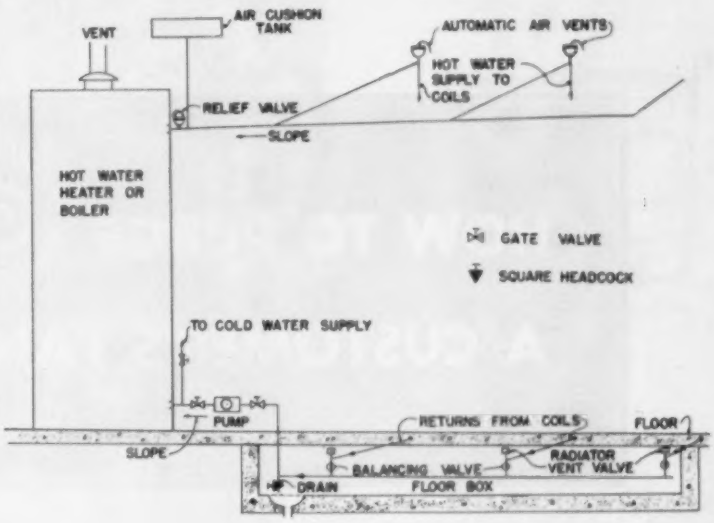
1. Low floor temperatures and the footage of pipe limit the amount of heat produced.

2. Some heat is lost, no matter how good the insulation.

3. There must be some ventilation to remove moisture.

Heat losses for the house can be determined from the accompanying heat loss tabulation form. Calculated on a 70-deg. temperature difference, this form is for a design temperature of 20 deg. below zero. However, a factor in the last line will enable you to raise the design temperature to zero.

Depending upon the number of hogs and the building's insulation, some, if not all, of the additional heat needed may be furnished by the animals. The amount of heat produced by various sizes of pigs is shown in the accompanying table. However, about 60 per cent of the heat they produce is lost by ventilation to remove the moisture they exhale. Thus, the actual hog heat available is only about 40 per cent of the heat the hog produces.



Typical floor panel heating system.

Heat production of swine

Size of hog	BTU/hr. produced by animal	BTU/hr. available for heating
1 day old	33	13
10 lb.	200	80
50 lb.	375	150
100 lb.	520	208
150 lb.	675	270
200 lb.	800	320
300 lb. fat hog	1025	410
300 lb. gestating sow	870	348

Heat loss tabulation form

	Loss in Btu per hour (70° difference between inside and outside temperatures)
1. Ft of floor edge (insulated as in Fig. 12) x 48.5	
2. Sq ft of lightweight concrete masonry wall, cores filled (or equivalent) x 13.3	
3. Sq ft of ceiling with 4 in. wool insulation x 5.6	
4. Sq ft of doors and windows x 32 (storm sash) or 80 (no storm sash)	
5. Infiltration loss of windows and doors on two sides: Volume of house in cu ft x 1.9	
Total heat loss from building	
For 50° difference in temperature, multiply by 0.7	

* Adapted from a booklet, "Hog Farrowing Houses and Equipment," published by the College of Agriculture, University of Illinois.

HOW TO PURGE A CUSTOMER'S TANK

HARRIS A. GOODWIN • Bastian-Blessing Co.

WHEN YOU BUY A NEW AUTOMOBILE, you expect it to be properly serviced before delivery. In the same way, your customer should expect his propane containers to be serviced before they are filled for the first time. The LPG distributor who recognizes and religiously respects this fact will reap rich rewards for his diligence. Consider the following facts:

- Both ASME and ICC specifications require hydrostatic testing of vessels at prescribed pressures consistent with the design working pressure of the vessel. This is usually done with *water*.
- Before it is changed with propane, the vessel will contain the normal atmosphere of *air*.

But both water and air are contaminants.

They seriously interfere with proper operation of the system and the connected appliances, and if not removed, will result in costly service calls and needless expense far exceeding the nominal cost of decontamination.

TABLE I—MINIMUM VOLUME OF METHANOL FOR NEUTRALIZING VESSELS

100 lb ICC cylinder	— 1/8 pt (2 fluid oz)
500 gal tank	— 5 pts
1000 gal tank	— 10 pts (1¼ gal)
2000 gal tank	— 20 pts (2½ gal)

How to remove moisture.

Most pressure vessels are so constructed that the openings through which the water may be drained after hydrostatic testing will trap a quantity of water. This is because of specifications and/or codes which require that the coupling project through the container wall for welding. Dehydration to remove this residual moisture is difficult and costly and in some cases may not be fully effective. Whether or not it is effective can be determined by removing a fitting and inserting a fountain pen flashlight, illuminating the interior of the container and exposing any moisture that might be present. The inspection should also include a careful observation of the side walls to detect any droplets of water that might be clinging there.

Some distributors have utilized old vacuum cleaners with dip tubes to reduce the water load to the lowest practical limits.

Even in the absence of visible moisture, the air in the vessel may approach 100 per cent relative humidity, which can cause serious trouble.

How to neutralize moisture.

The rule of thumb for neutralizing of moisture in an ASME container calls for the introduction of at least one pint of *genuine absolute anhydrous methanol* (99.85 per cent pure) for each 100 gal of water capacity of the container. On this basis,

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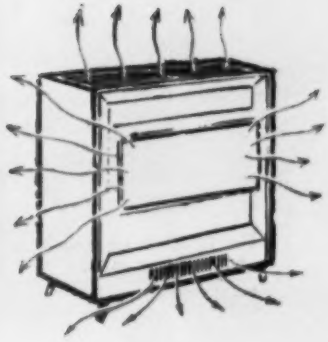

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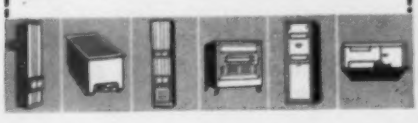

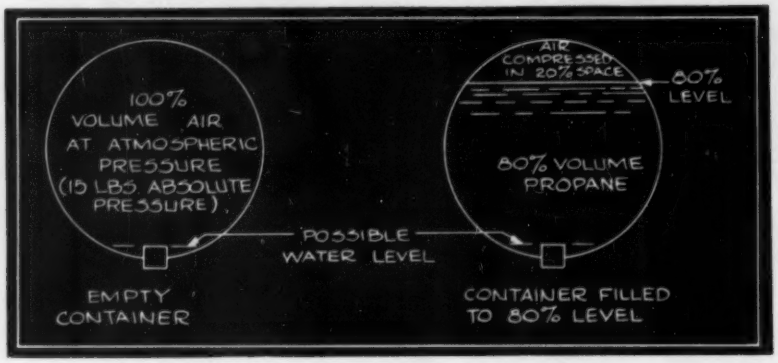
100% VOLUME AIR AT ATMOSPHERIC PRESSURE (15 LBS. ABSOLUTE PRESSURE)
AIR COMPRESSED IN 20% SPACE
80% LEVEL
80% VOLUME PROPANE
POSSIBLE WATER LEVEL
EMPTY CONTAINER
CONTAINER FILLED TO 80% LEVEL

Fig. 1. Effect on pressure when atmospheric air is not purged.

minimum volumes for typical vessels would be as shown in *Table 1.*

This would not be sufficient to neutralize visible moisture. This should be extracted by the following procedure:

- Introduce 10 gal or more of genuine absolute anhydrous methanol (99.85 per cent pure) into the container and allow it to stand for at least one week. The natural temperature changes between day and night will cause the methanol to vaporize and recondense against the entire interior surface of the vessel. It will be dissolved in the droplets of moisture clinging to the wall, which will then run down into the pool of methanol in the low point of the container.
- If time will not permit the seven-day waiting period, the container may be rolled through 360 deg, or 180 deg clockwise and 180 deg counterclockwise from starting position, actually to wash down the condensate from the upper walls of the container. This, however, will not remove any condensed moisture from the major area of the heads of the container.
- The treatment volume of methanol may then be withdrawn for use in washing down other containers. It may be re-used until the concentration of water becomes excessive (over 25 per cent by water volume).

A simple test to determine percentage of water in water-methanol solution can be performed as follows: Pour 10 cc of pure castor oil and 10 cc of methanol-water solution into a large test tube. Cork it and shake vigorously until the mixture emulsifies. Then set the test tube away for a few minutes.

When the solution clears, the castor oil will rise to the top. It will have dissolved most of the methanol out of the water since it has a greater affinity for methanol than has water. The increased volume of the castor oil—methanol solution, coupled with the reduced volume of water, will indicate the amount of dilution that has taken place.

Consistency of treatment with methanol.

Many distributors make a practice of introducing a minimum of 5 gal of genuine methanol into each tank car of product when it is placed in their bulk storage. Others, each time they fill a tank truck from storage for delivery to the consumer, add one gal of genuine methanol per 1000 gal of load. Those who do this 12 months out of the year report complete freedom from freeze-ups in regulating equipment.

Genuine absolute anhydrous methanol (99.85% pure) is the least expensive and the most effective of all alcohols. Over 98 per cent of the total volume is produced by the following companies and is available in steel drums: Commercial Solvents Co., Carbide & Carbon Chemicals Div., Celanese Corp.; Reichold Chemicals, Inc.; Solvay Sales Div., Allied Chemical & Dye Co.; E. I. duPont de Nemours & Co., Union Carbide Co., Monsanto Chemical Co., Spencer Chemical Co.

Avoid substitutes; they will not work. The secret of the effectiveness of methanol over all other alcohols is simply its high affinity for water, plus the overriding fact that its boiling point is the lowest of all alcohols:

	Boils at		Boils at
Butanol	244 deg F	Isopropanol	180 deg F
Isobutanol	225 deg F	Ethanol	173 deg F
Water	212 deg F	Proprietary	
Propanol	207 deg F	Solvent	172 deg F
		Methanol	148 deg F

It follows that any water vapor distilled off the propane will be mixed with a higher percentage of methanol vapor. This will lower the freezing point of the water vapor-methanol vapor mixture substantially below the temperature of the refrigerated gas at the expansion orifice of the regulator.

Importance of purging atmospheric air from the container.

If the natural volume of atmosphere in the vessel is not removed, four problems will result:

- Installation made in spring and summer will experience excessive and false container pressures. The relief valve will open, blowing off the excessive pressure, reasons outlined below.
- An air mixture will be present in the container

The scene: United Propane Company's Macon Branch, Decatur, Ill., supplying propane to 2,418 retail and wholesale customers yearly. **The job:** Accounts receivable and age analysis with automatic Degree Day records. **The equipment:** Burroughs F 5200 Multi-Print Accounting Machine. **The results,** reported by K. L. Laswell, secretary-auditor: "With our Burroughs equipment, we have been able to reduce our month-end workload 66⅔%. This stems partly from simultaneous and automatic multiple printing of original records, the use of a metered bill and the elimination of human errors in computing individual customer charges. As a result, we have more accurate records, complete age analysis and more efficient routing of delivery trucks."

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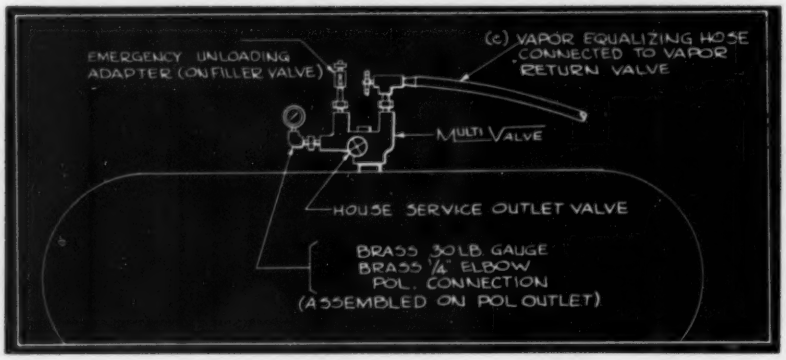


Fig. 2. Proper equipment setup for proper purging.

vapor space. This mixture will be carried in the vapor being discharged to the appliances, resulting in as many as five or more service calls from pilot light extinguishment.

- If the vapor return equalizing hose is not used, the contained air will be compressed above the liquid level, resulting in slow filling.
- If vapor equalizing hose is employed, the air—and any moisture it contains—will be transferred from the bulk storage tank to the truck tank.

Why? A 500-water gal capacity propane vessel has a displacement of 67 cu ft of space. A 1000-gal tank has 134 cu ft of displacement, and a 2000-gal container therefore has nominally 268 cu ft of displacement. Let's assume that a vapor equalizing hose is not employed, and the container is filled by the splash filling method. Then, depending upon the temperature of the liquid propane being transferred, the vapor space of the filled container will contain the volumes of propane air vapor mixtures shown in *Table 2*. This tabulation assumes that the container can be filled by the splash-fill method to an 80 per cent filling level; this of course is not possible at elevated temperatures, because the back pressure created will cause the pump to stall, or in the case of a positive displacement piston type pump, will cause the relief valve on the container to open.

In using *Table 2*, bear in mind the following considerations:

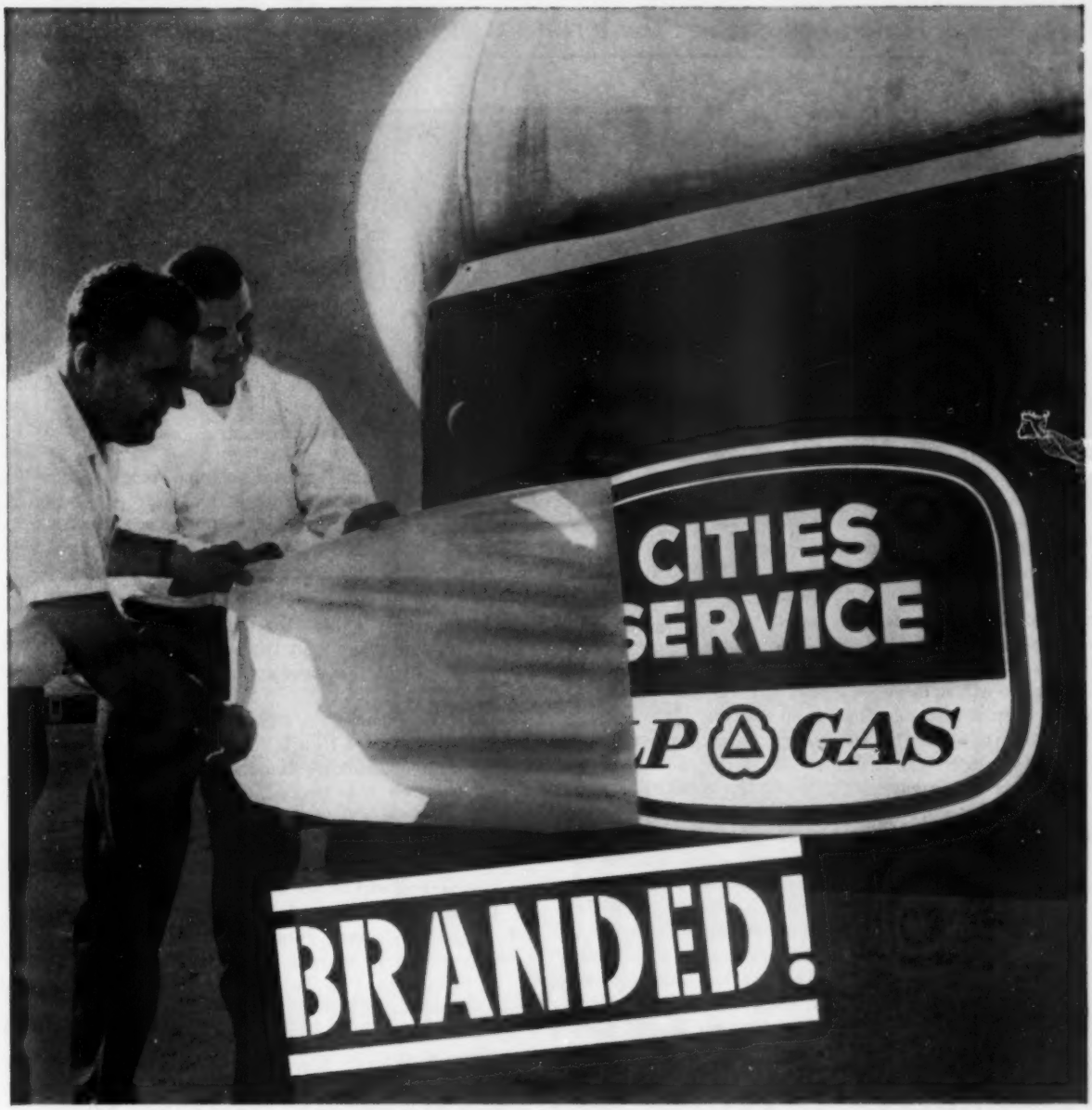
- The temperature of the liquid in the bulk truck may be quite cold compared to the temperature of the receiving container, and substantially lower than the ambient temperature.
- If the receiving container is warmer than the product being discharged into it, it will act as a vaporizer and will rapidly generate a false higher vapor pressure at the start of the fill.
- Propane and air are not readily soluble so the pressure produced in the container is equal, for all practical purposes, to the *sum* of the total pressures of the propane and the air.
- The air, which at the start of the fill occupied 100 per cent of the container volume, has been compressed into only 20 per cent of the container displacement, producing an absolute air pressure of 5 atmospheres or 75 psig (60 lb gauge).
- Suppose the ambient air in contact with the vessel is substantially higher than the starting temperature of the transferred product, then, as the container warms it, the liquid level will rise, reducing the vapor space. This will compress the air to a higher value as well as generating a higher propane vapor pressure, resulting in a total gauge pressure that will substantially exceed the value shown in *Table 2*.

For these reasons, operators sometimes report that, subsequent to the filling of the container, the relief valve "opened prematurely." If the atmospheric air had been removed from the container by the purging process described below, transfer would be faster, the pump would not stall, and less energy would be required to fill the container. Additionally, of course, the relief valve would not open, since the final pressure gauge would have been in the magnitude of 75 psig less than the tabulation in the "Total Gauge Pressure" column.

Most operators set new storage tanks, on the customer's premises, either unpainted or with only a primary coat, to allow mill scale to "weather" before painting. This is practically no reflectivity to repel solar heat; instead it is absorbed, seriously aggravating the resulting temperature rise within the container. According to some authorities, the reflectivity of clean aluminum paint finish is approximately 72 per cent while glass white paint has a reflectivity as high as 82 per cent. This compares with a chocolate brown prime coat finish having a reflectivity as low as 8 per cent to 10 per cent.

Service calls resulting from pilot light outage complaints.

As is shown in the propane air percentage column in *Table 2*, if the container were initially filled with a product having a starting temperature of 20 deg F, for example, the filled container pressure would show a gauge reading of 120 psig. The actual vapor being discharged to the appliances would be 55 per cent air, and the thermal value of this mixture would therefore be nominally 1119 Btu per



After 11 years as an independent, Al Miller, owner of the Miller Appliance Company of Sauk City, Wisconsin, has gone branded. Why? One unique experience proved to Mr. Miller that he was dealing with a remarkable company.

In Mr. Miller's own words:

"A real cold wave rushed into the Sauk City area a few winters ago. Almost every gas supplier was shut down and I went home that night wondering how I was going to fill all my fuel orders the next day. In the morning, I went to the plant and was astonished to see my full supply of LP gas on the siding. Cities Service had delivered it practically over night. That's what I call service!"

Mr. Miller realizes that the name Cities Service means quality and prestige as well as service. That's why he's joined a growing number of leading LP GAS distributors in proudly displaying the Cities Service emblem.

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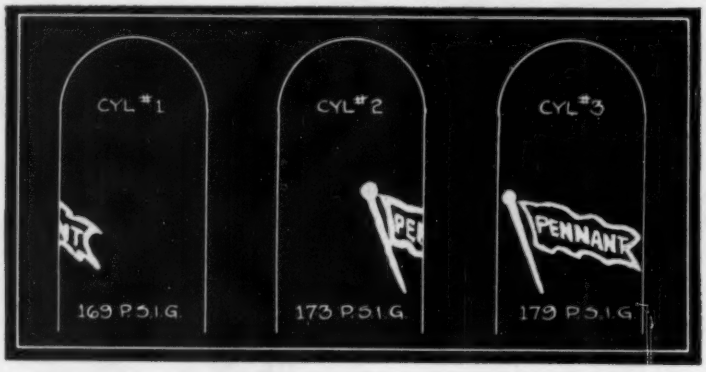


Fig. 3. Test on cylinders showing heat absorption relative to exposure to sun's rays.

cu ft. The serviceman would adjust the pilot lights and air shutters of all appliances to burn properly at this level.

It should be obvious that as this contaminated volume of vapor is withdrawn, the Btu value of the mixture will gradually become richer; hence, as the propane content increases, producing a vapor-air mixture of 1500 Btu, the mixture becomes too rich to burn properly and certain types of pilot lights will extinguish. This is particularly true of air-aspirating pilot lights on heating systems, and the mini-pilots, which require delicate adjustment.

Then the first customer complaint of pilot light outage will occur. Despite readjustment, the mixture will become progressively richer until the customer complains a second or a third time. These service calls frustrate the serviceman. Failing to understand the reasons for the pilot outage and improper operation, he usually blames them on faulty regulation, which of course is not true.

In some instances, the serviceman, in a last desperate effort to correct the situation, has removed and replaced the regulator, not knowing that at this particular time the contaminating air had all been purged from the system through the consuming appliances. Since no further complaints resulted, he has become firmly convinced that the whole fault was that of the regulator. Ironically, in such cases, he is worse off for his "experience," for his diagnosis of the trouble has been wrong, and he may be expected to misapply this false solution to similar problems in the future.

These situations demonstrate the need for proper education of service personnel to acquaint them with the technical facts as outlined above. Additionally, they must be trained in the proper purging of the contaminating air in the container as outlined below.

Proper purging of air from propane vessels.

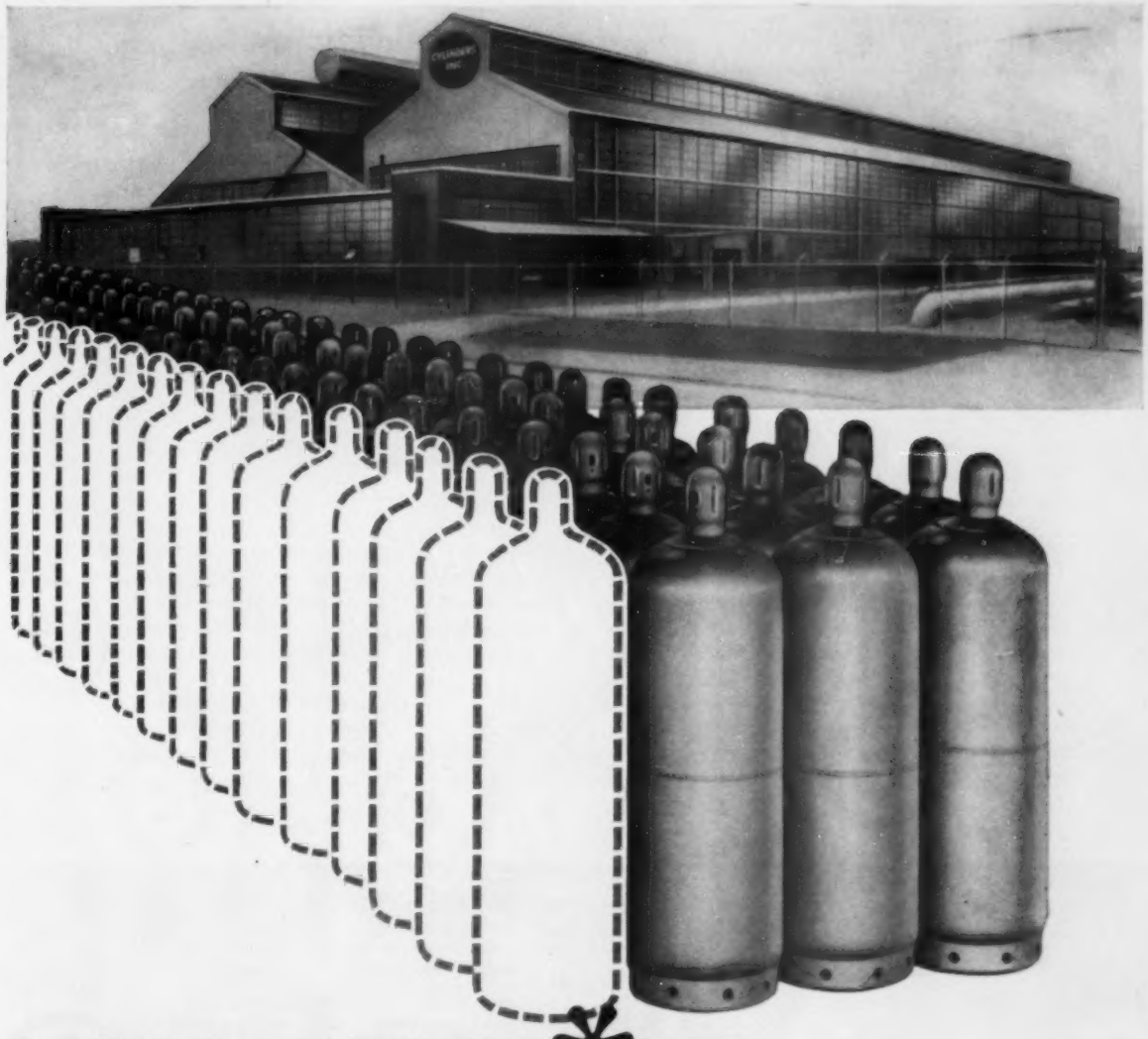
There are two ways to remove the atmospheric air—the right way and the wrong way. We will first dispose of the *wrong* way, which is the *easy* way.

- Many servicemen, in filling ASME bulk containers for the first time, open the fixed liquid level vent valve, thinking that the air will be driven off through this tiny no. 54 drill orifice. This will produce a capacity of discharge of only 40 to 120 cu ft *per hour*, depending on the vapor pressure against the orifice. The mixture being discharged will be air and propane. (See *Table 2*, propane air percentage column).
- If the serviceman pumps gas into the container at the rate of 50 gpm, it will be completely filled in 20 minutes. In that time, the amount of mixture discharged through the orifice would be small, the amount of air insignificant.
- There's another way that is equally wrong. In this method, five or ten gal of liquid propane is injected into the empty container. This will flash into the vapor phase up to about 2 per cent of the water gallon capacity of the container. The refrigeration that will result will quickly chill the container and any moisture vapor that is present will condense upon the walls of the container and remain there. In addition, the refrigerating effect will lower the vapor pressure

TABLE 2—VOLUMES OF PROPANE/AIR MIXTURES REMAINING AFTER SPLASH FILLING

Liquid Propane Temp. degree F	Propane psig	Propane psia	Air psia	Total Pressure psia	Total Gage Pressure	Propane/air per cent	Btu/CF Mixture
5°	30	45	75	120	105	37.5/62.5	945
20°	45	60	75	135	120	44.4/55.6	1,119
52°	90	105	75	180	165	58.3/41.7	1,469
65°	120	135	75	210	195	64.3/35.7	1,620
105°**	215*	230	75	305	290	75.4/24.6	1,885

NOTE: Relief valve is set at 250 Psig. *See NGAA Specifications.



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preventing it from removing more than 25 per cent to 40 per cent of the air contained.

This wrong way of purging has been common practice in initial filling of containers for many years.

Purging the right way is always the least expensive.

The correct procedure is as follows (refer to *Fig. 2*).

(a.) Install an unloading adapter on the double check filler valve, leaving it in the closed position.

(b.) Then install a gauge adapter assembly consisting of a 30-lb pressure gauge on the house service POL outlet connection. Make sure that any air pressure in the container has been blown down and exhausted to atmosphere.

(c.) Attach a truck vapor equalizing hose to the vapor return valve on the container.

(d.) Open the valve on the outlet end of the vapor equalizing hose, throttling it sufficiently to avoid slugging the excess flow check valve on the truck and carefully observing the 2411 pressure gauge reading.

(e.) When the reading shows 15 psig container pressure, shut off the vapor valve on the hose.

(f.) Switch the lever on the unloading adapter so as to open the double check filler valve and blow down to exhaustion.

(g.) Close unloading adapter lever, allowing the double check filler valve to close.

(h.) *Repeat* steps (d), (e), (f) and (g) *four more times.*

Here is what happened: The container initially held one volume of atmospheric air. When 15 psig of vapor pressure (one atmosphere) was introduced, the resulting mixture in the container was 50 per cent air, 50 per cent propane. This same ratio obtained after blowdown. The second time one volume of propane was injected, the ratio of the mixture was changed to 75 per cent propane, 25 per cent air, after blowdown, the residual mixture held these same proportions. Succeeding purges continued to increase the percentage of propane and decrease the percentage of air in geometric progression, as shown in *Table 3.*

Experience indicates that a reduction of the residual air content to 6.25% is adequate. The resulting mixture will have a thermal value of about 2400 Btu. The serviceman can be instructed to adjust the burners for an end product that will be ever so slightly richer than that resulting at the time of installation. Moreover, this slight volume of air will to some extent dissolve in the propane if the installation stands unused for a few days.

How much product will proper purging consume?

The displacement of a 1000-gal tank is 134 cu ft. If the vapor is purged five times (as recommended), a total of 670 (5 x 134) cu ft of propane at 15 psig (which in this case is also 15 psia) will have been used. This is equivalent to 15.4 gal. In a 500-gal tank, 7.7 gal would have been used.

There is no other practical way to extract the air from the tank so quickly or so cheaply.

A word of caution:

Never purge the container in this manner on the customer's property. Discharge of the vapor into the atmosphere can seriously contaminate the surrounding area. It should in all cases be done at the bulk plant site, on days or at times when plant personnel are not engaged in other productive activities.

Many times we field-tested the methods described here with distributors of the product. In one series of tests, we purged new ICC containers some of which had been primary coated, others painted with a gloss white finish.

In these tests, when all the air had been purged, the vapor pressures coincided with the true pressure of the product. Where there had been no purging, vapor pressures at prevailing temperatures reached 295 psig. Completely purged cylinders were filled in 80 seconds; unpurged cylinders took 8 minutes, with the pump becoming vapor-locked repeatedly.

One test illustrates the sensitivity of reflective and non-reflective surfaces to the absorption of solar heat. Three cylinders, bearing the distributor's trademark in indigo on a gloss white background, were positioned as illustrated in *Fig. 3.* Pressure readings taken at 4 P.M. were 169, 173 and 179 psig, respectively, demonstrating that the greater the dark area, the greater the absorption of the sun's heat. At dawn the following morning the vapor pressures in the three containers had all decreased to 115 psig. ■

TABLE 3—PURGING AIR WITH PROPANE VAPOR AT 15 PSIG

1st purging	50 per cent air	50	per cent propane remaining in container
2nd purging	20 per cent air	75	per cent propane remaining in container
3rd purging	12.5 per cent air	87.5	per cent propane remaining in container
4th purging	6.25 per cent air	93.75	per cent propane remaining in container
5th purging	3.13 per cent air	96.87	per cent propane remaining in container
6th purging	1.56 per cent air	98.44	per cent propane remaining in container

A reprint of this article can be obtained by writing on company letterhead to the Editor, BUTANE-PROPANE *News*, 198 S. Alvarado St., Los Angeles 57, Cal.

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AIR CONDITIONING
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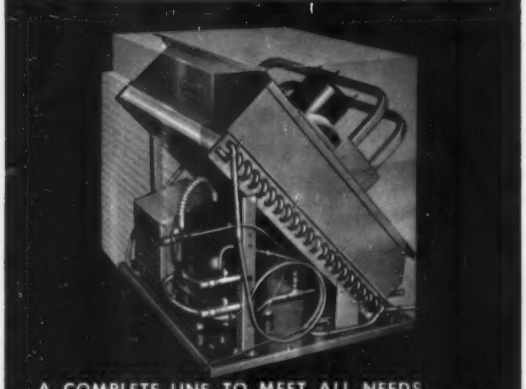

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Jack Izu proudly shows off tomato seedlings that are about ready for harvesting and shipment. Thanks to pre-emergence flaming with propane, IKI Farms had abundance crops, free of the persistent nuisance, sour clover.

Quick dose of propane saves IKI Farms $180 an acre

IN JANUARY, WHILE MUCH OF THE REST OF THE COUNTRY was mantled with snow, IKI Farms in Mecca, Calif., were planting tomatoes. Three months later, the seedlings were harvested, packed in peat moss, and shipped to many points in the nation for transplanting.

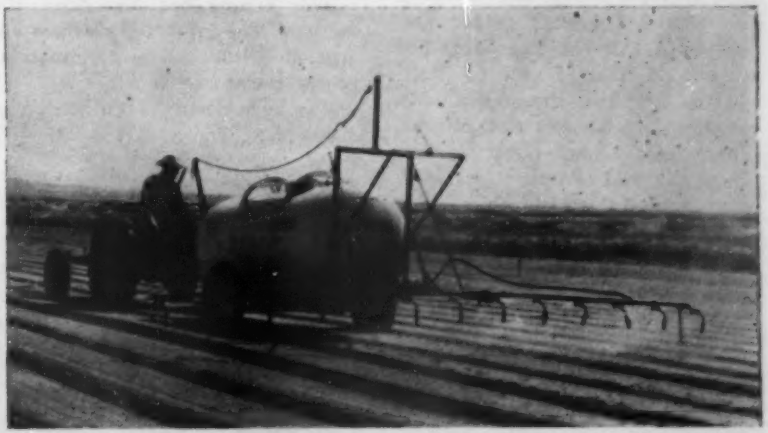
If the relatively warm January weather in this tiny community in southern California's arid Coachella Valley is conducive to good early tomato growth, it is just as favorable for weed propagation. To keep them in check, IKI uses what Manager Jack Izu calls the "finest available fumigant" — methyl bromide chloropicrin. This chemical effectively kills every weed in the tomato patch except one—sour clover.

Ever since IKI began growing tomatoes, sour clover has had to be hand-hoed at a cost of anywhere from $200 to $280 an acre—had to, that is, until last winter, when propane did the same job and did it better for $12.

Perhaps the most amazing thing about this feat is that it was accomplished with a home-made rig, engineered on the job and hand assembled from parts not ideally suited to the application. The wrong burners were used and the rig ran too slowly for optimum fuel economy.

But Izu is well satisfied with the first winter's performance, as well he should be. When he turned to flaming he needed fast action, not perfection. That will come later.

It was around Christmas time



This is the makeshift rig, put together in a hurry from spare parts, that performed yeoman service in clearing the tomato fields of sour clover. Propane saved IKI Farms an estimated $180 an acre in hoe bills.

A BPN Staff Report

"See the difference," says Izu as he shows his guests adjacent rows of tomatoes, one of which was flamed, the other not flamed. At left is Cy Shaddy, Petrolane regional manager, who engineered the home-made rig for IKI Farms. The others are Ben Brunner of Manchester Tank and Howard Carr, Indio LPG marketer who supplied gas for the job.

IKI Farms

when Izu decided to give flaming a whirl. He called Carr & Carr, LPG dealers at nearby Indio, and ordered out some hand burners. With these he made his first try at pre-emergence flame cultivation.

It soon became obvious that these were not the answer. So he called in Howard and Bill Carr again, and this time Cy Shaddy, Petrolane regional manager at El Centro (Petrolane distributes product to Carr & Carr,) was brought in for consultation. One morning the men sat down together and "engineered" a rig. The Carrs put in a long-distance call to Manchester Tank & Equipment, Los Angeles, for burners and fittings. These were rushed down by bus. Then the IKI Farms blacksmith shop went to work fashioning a trailer-mounted flamer to be towed behind a tractor.

By the next day it was in operation. If not ideal, it was good enough to impress Izu, so a second one was built before the week was out.

IKI uses pre-emergence flaming. The sour clover seeds germinate in about a week, while tomatoes require from 14 to 17 days. IKI takes advantage of this time lag to sweep the field clean of unwanted growth before the tomatoes come up.

It's a matter of close timing. Izu must wait until the last possible moment in order to destroy the maximum number of weeds. But a half-day too much might destroy the tomatoes as well. So, after the weeds have begun to germinate, he makes twice-daily tests of the condition of the tomato seeds. At just the right moment, just before they are ready to "break," he sends the flame cultivator out into the field.

This timing has an added advantage. The ground is warmed up just enough to hasten germination of the tomato seeds.

The burn destroys nearly all the sour clover. Those plants that were too slow in germinating to be destroyed are later cut out by hand. But they are few in number.

The initial flamings were done for $12 per acre, including all labor charges. With 350 acres planted to tomatoes, IKI stands to save $63,000 on its hoe bill. This is figuring on the basis of a $180 per acre cost reduction, which Izu says is conservative.

IKI also grows celery; these too are being flamed. Management is also considering employing flaming in asparagus cultivation.

Carr & Carr, meanwhile, has built itself a load that hits 1000 gal. per day at its peak. At this point, however, it's a case of being a little bit too much of a good thing. The equipment uses a vapor system, and the drawoff has been at too rapid a rate to allow adequate vaporization. The trailer tanks must be frequently refilled. What is needed is a liquid system wherein the fuel is vaporized at the burner heads. Ben Brunner of Manchester Tank is working on an improved rig for IKI that utilizes such a system.

If and when Izu converts his equipment, Carr & Carr will lose some of its load, since the new rig, moving at the optimum speed, will use less gas to do the same job. But the company will welcome the loss. Then the problem of supplying fuel will no longer be so acute.

"Besides," says Howard Carr, "this type of load is going to grow in the valley." By word of mouth, the story of IKI's flame cultivation experience has been getting around. It could start a trend in Coachella Valley's row crops. For Carr & Carr, a whole new market has begun to unfold. ■

Row upon row of flamed tomato plants—350 acres of them—stretch off toward the horizon. Flaming of the entire crop saved IKI Farms many thousands of dollars this past winter.

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Hamilton Manufacturing Company, Two Rivers, Wisconsin

Marshall Cook discusses metering

METERED SYSTEMS

. . . Their benefits to the dealer . . . How to finance them . . . How to overcome consumer resistance . . .

MARSHALL COOK

Rockwell Manufacturing Co.

THE L.P. GAS DEALER FACES THE SAME PROBLEMS that perplex any businessman. Among these are increasing operating costs, shortage of investment capital, mounting competition, and the ever-present profit squeeze. But add to these some problems specific to the marketing of LPG products —complex, time-consuming accounting procedures, distribution difficulties, and the lack of fuel storage space—and even the slightest improvement becomes a valuable asset.

At one time or another, the L.P. gas dealer probably considers metering as a solution to some of his problems. A number of questions then arise. He asks himself: Are meters worth the investment? How can I set up a metering program? Can meters really provide a substantial improvement in profits? How can I best convince my customers of the value of metering?

The experience of meter users throughout the United States provides these answers.

(Frankly a sales pitch for metering, Mr. Cook's article nevertheless underscores the usefulness of the vapor meter in solving some of the dealers' most pressing problems in fuel delivery, accounting controls, and stabilization of clientele—Ed.)

Their benefits to the dealer

Dealers who have sold all or most of their customers on metering almost invariably report substantially reduced operating expenses. One of the biggest savings here is usually in delivery costs.

Whether he likes it or not, the L.P. gas dealer is in the trucking business. Compute the costs of driving a truck one mile or delivering one gallon of gas. How much did the trucks cost him? How much is spent on insurance, maintenance, interest or carrying charges, driver wages and fringe benefits, unemployment insurance, operation, licenses, and a host of other costs? All these are hidden in delivery costs, combining to make trucking a major portion of the dealer's overhead. Anything he can do to reduce delivery costs goes a long way toward improving the profit picture.

Meters reduce delivery costs by increasing the efficiency of trucking operations. Dealers who use them have complete control over filling the storage tanks. They can set up a route system that produces the maximum possible number of gallons delivered per mile driven. Expensive call-backs are eliminated because drivers need not collect payment at the time of delivery. Customers like this idea, too. They don't have to wait when a delivery is due.

In some metered operations, dealers have reduced their truck fleets more than 30 percent. In others, they have expanded operations considerably without buying additional trucks.

Accounting is also easier in a metered operation. By adopting the cycle billing method used by de-

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partment stores and utilities, the dealer can spread his accounting department's work load over the entire month. Some firms have cut their accounting force almost 50 percent through metered operations. One dealer, with 3000 metered customers, reports he needs only one person to handle all billing and accounting, in addition to general office work.

How to finance them

Some L.P. gas dealers object to meters because their available investment capital is too limited to permit a major installation of new equipment. Not only are there ways to get around this problem, but there are proved methods whereby meter installation will quickly provide increased amounts of investment capital.

First, the initial investment in meters need be only as large as the dealer wishes. He certainly does not have to convert all his customers to metered operation at one time. In fact, it is more widely accepted and a more logical approach to first convert selected areas and routes. When these are well-organized and operating smoothly, the metered areas can then be expanded at regular intervals.

This practice not only spreads out the necessary investment, but it also enables the dealer to gather experience while he is increasing the efficiency of his operation. In effect, he can ease himself into the metering operation, trying out various methods on a smaller scale and making changes and improvements as he goes along.

There are a number of ways to finance the cost of meters and installation through deposits or service charges. Here are five:

1. A meter deposit from the customer to cover the cost of meter plus installation—about $25. This deposit is normally refunded.
2. A meter deposit amounting to 1/12 of the estimated annual fuel dollar usage. This will approach the cost of meter plus installation.
3. A monthly meter service charge of $1. This will pay for the meter plus installation in two years and could then be applied toward future maintenance.
4. A low meter deposit, as little as $2.50, covering the installation cost. Meter cost is then amortized over a prolonged period.
5. A minimum monthly rate, usually averaging around $2.50. This eliminates the problem of very low volume users, and the meters more than pay for themselves.

How to overcome consumer resistance

A non-metering dealer might say this is a neat little package that looks very good on paper. The real question is, "How do I get my customers to pay this deposit or service charge?"

Granted there may be some resistance to a meter deposit from some customers, but this can easily be counteracted. There are many customer benefits that will help sell metered operation. Here are just a few some dealers are using to market their meters:

1. *The customer does not have to be at home when a delivery is made.* Payment is made by mail when the monthly bill is received by the consumer.
2. *The customer has confidence in meter accuracy.* He knows that the volume registered is the volume used, and this is not always the case with liquid level gauges and outage gauges.
3. *The customer can get a lower rate.* With meters, it is easy to establish sliding or incentive rate scales the more fuel used, the lower the rate.
4. *The customer is assured of an adequate continuity of supply.* With meters, it is the dealer's responsibility to maintain an adequate fuel supply in the customer's storage tank.
5. *The customer need no longer purchase fuel before it is needed.* Large fuel payments are not necessary. Instead, he can use a pay-as-you-use basis, or a budgeted or even-pay plan.

* * * *

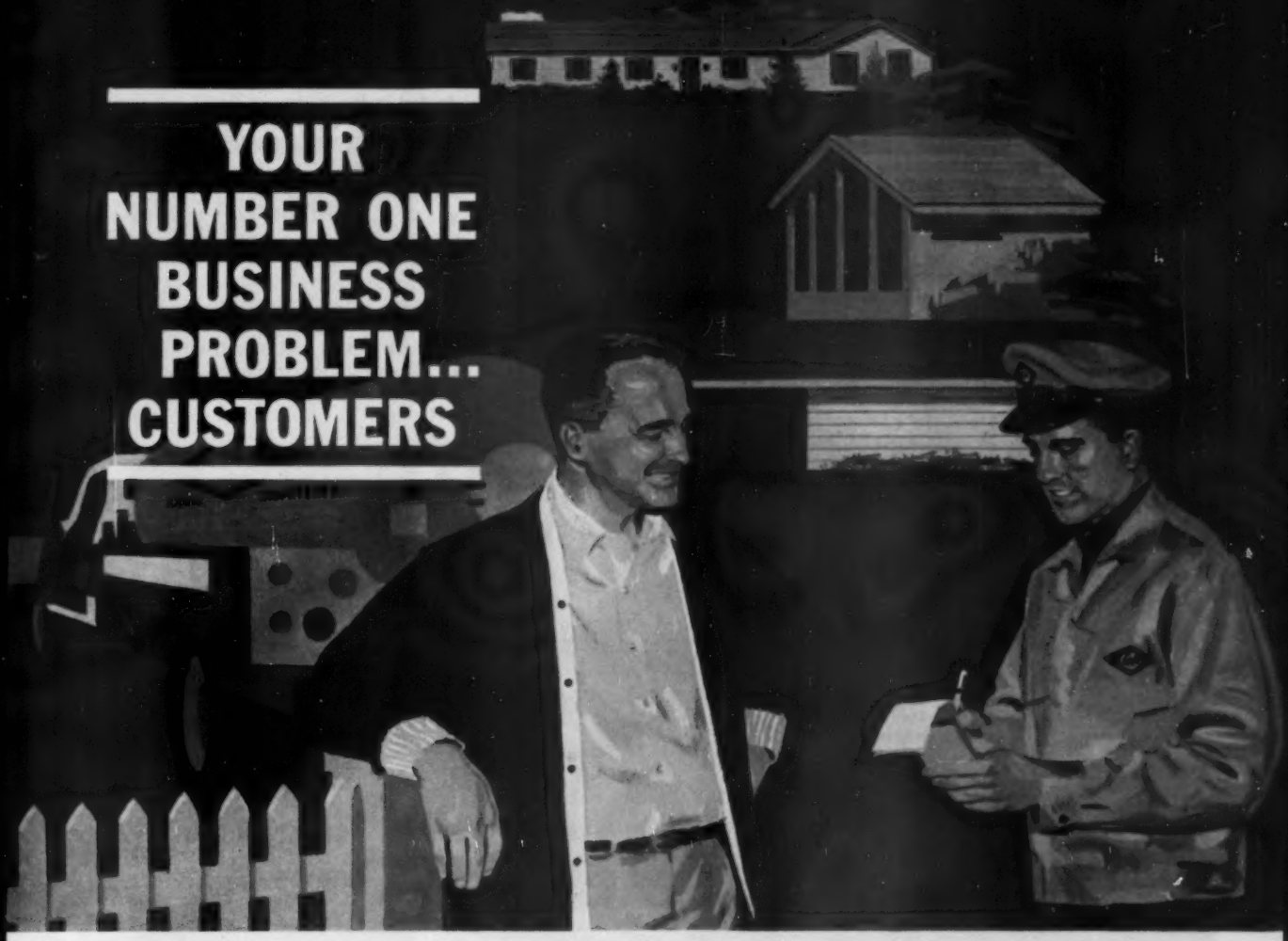
Because meters give the dealer complete control over consumer storage, he can fill consumer tanks when the price of fuel is most advantageous to him. This means both increased sales and higher profits when the fuel is actually consumed.

Meters also make it easy for a dealer to adjust his sales price, if necessary. Non-metering dealers often get caught in a price squeeze because of the fluctuating seasonal demand of L.P. gas. Price adjustments cannot always be made on a poundage or gallonage basis because it represents a considerable percentage increase in the sales price. But the dealer using a metered operation adjusts his prices on a cubic foot basis. Since a cubic foot is approximately 1/37 the number of Btu's per gallon, a small increase per cubic foot, even per hundred cubic feet, rarely draws customer complaints. But it can have a substantial effect on the dealer's gross income and net profits.

Many dealers report reduced customer turn-over and total increased sales after they switched to metered operations. This is easily understood because the dealer owns and controls the meter. Customers certainly will not purchase fuel from a cut-rate tank truck distributor under these conditions because they must still pay for all fuel consumed and registered on the meters. As long as the dealer maintains the fuel supply and provides proper service, customers have no reason to switch to another distributor. ■

A reprint of this article can be obtained by writing on company letterhead to the Editor, BUTANE-PROPANE *News*, 198 S. Alvarado St., Los Angeles 57, Cal.

YOUR NUMBER ONE BUSINESS PROBLEM... CUSTOMERS



What do you really have to sell . . . to keep customers satisfied, to get new ones? SERVICE . . . the kind of service you can **promise** . . . and **deliver** when your trucks are Motorola radio-dispatched.

One of your customers calls in . . . he wants "fire-engine" service. You simply pick up the mike, radio the nearest man to handle the emergency. The problem is handled in minutes; no competitor will ever sway that customer over.

Isn't that the way you want to run your business . . . or would you rather sit on the emergency call and develop ulcers while you wait and wait for one of your drivers to call or report in . . . then send him right back out. This kind of operation cripples your business with increased overhead . . . and the customer still isn't satisfied!

How much longer can you afford to have your drivers and mechanics backtracking all over your territory? With radio it is just like you were sitting next to the driver all day long . . . helping him make decisions, make more calls. The money you save on gas, oil, overtime will pay for the radio and give you the competitive edge you need to push your business forward.

You've probably considered 2-way radio for your firm. There's no better time than now to get the facts. A Motorola L-P Gas radio specialist is waiting to help. Mail the coupon today.

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Message, Miss top LPGA convention program

A man with a message; and a miss with a mission highlighted the happenings at the 11th Annual Southeastern District LPGA Convention and Trade Show held in Atlanta in late March. The meeting, which attracted well over 1200 registrants, was a three-day affair conducted in the Biltmore Hotel.

The man with the message was C. S. (Chet) Stackpole, managing director of the American Gas Association. He brought the word of gas unity to the final day's luncheon session and was cheered loudly by the assemblage for his thoughts.

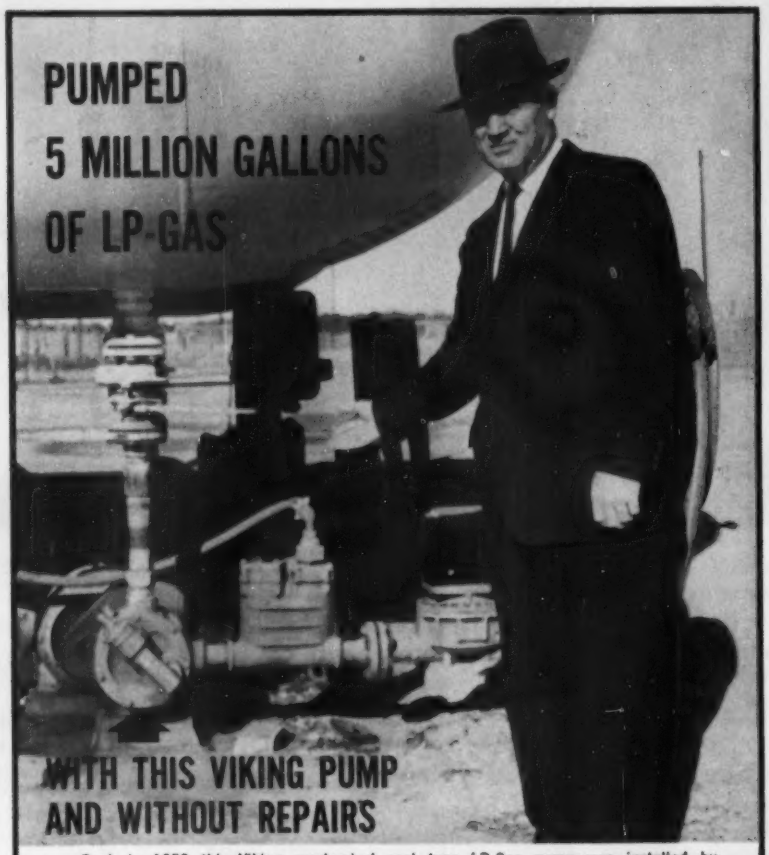
"We in the gas industry have to stick together," Stackpole warned. "We have to be allied. . . . By working at it, unity will be accomplished in spite of its opponents." One area he mentioned as an apt one for unity was the field of government controls, such as the proposed fuels policy studies. "When the fingers of government enter private enterprise, you've got a long row to hoe," he cautioned.

Stackpole then went on — after gently rapping the gas water heater manufacturers for "tacking $5 and $10 bills on their products" in that price war—to list a number of other things the LPG and natural gas industries could do together to promote the one gas industry.

"Let's sell quality products; let's make ourselves profitable and stop giving our products away," he said. "Let's advertise wisely, honestly and positively. Let's double our training programs. Let's seek new ways to sell our wares. Let's reward creative, imaginative people in our employ. Let's make our managements sales-minded. Let's establish better communications within our companies and within our industries. Let's know our competition. And finally, let's recruit young people into our organizations.

The miss with a mission was pretty, petite Linda Craig, a 17-year-old lass from Ninety-Six, S. C. She came to the convention as Miss

Linda Craig
Miss Southeastern LPGA



Back in 1953 this Viking mechanical seal type LP-Gas pump was installed by Allen Butane Gas & Equipment Company of Denton, Texas. J. E. Allen, president, shown above, explains that this Viking has pumped approximately 5-million gallons of butane without any lost time or costing a cent for repairs. And it still delivers 45 G.P.M.

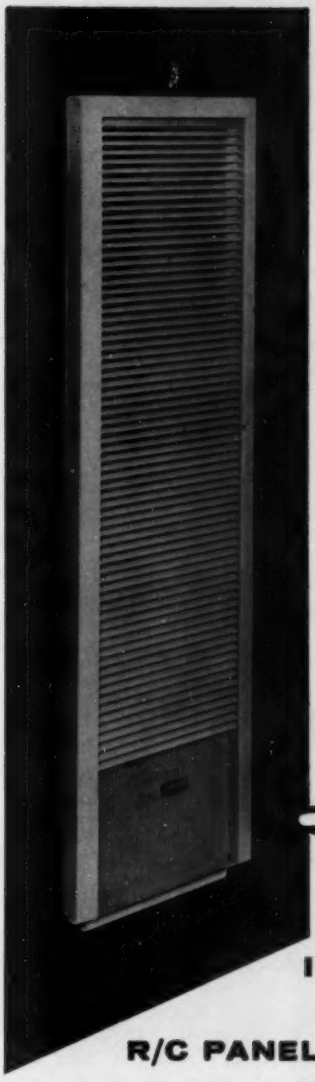
This is just one of many Viking Pumps giving Allen Butane dependable, economical service. In each of their 9 bulk plants, two and sometimes three Viking pumps are used. Besides that, 12 of their delivery trucks are Viking Pump-equipped. The Allen Company has used Viking Pumps with satisfaction for the past twenty-two years.

Viking Pumps will give you dependable, economical service, too. For information on the complete line of Viking LP-Gas Pumps—5 to 158 G.P.M.—for bulk plants, trucks, fueling and bottle filling, write for Catalogs HB and SP-527B.

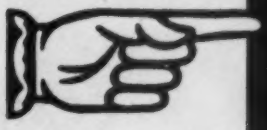
50 YEARS

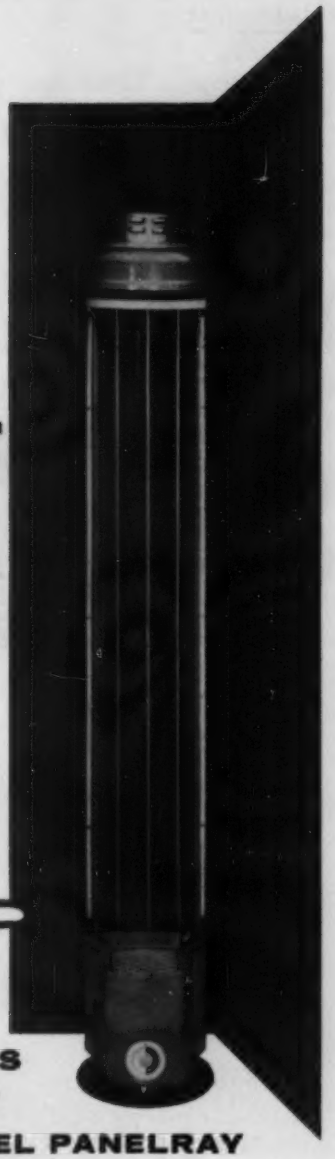
VIKING PUMP COMPANY
Cedar Falls, Iowa, U.S.A. • In Canada, It's "Roto-King" Pumps
See Our File In Butane Propane Catalog

See the Viking Pump Display Booths 156 and 157, LP-Gas Show, Conrad Hilton Hotel, Chicago, April 30, May 1, 2, 3



TWO LOW-COST WAYS TO FILL A ROOM WITH HEAT...NOT WITH HEATERS





INSTALL THIS DAY & NIGHT R/C PANELRAY HEATER IN THE WALL

The heater grille extends only 2⅜ inches into the room . . . but the heat (radiant and circulated) extends everywhere.

Jetglas-C heating element can't burn out or rust out.

Six single-room and dual-room models, four of them available with self-contained or wall thermostats. Dual models have single vent, dual controls. Luxurious comfort — low cost!

INSTALL THIS DAY & NIGHT FLOOR MODEL PANELRAY IN THE CORNER

Six inches from the walls, you install this nine-inch-diameter Panelray heater . . . and from an otherwise wasted corner, heat is directed to the entire room.

"No gingerbread" design keeps the price down. Curved shield behind heating column boosts efficiency. Easy venting (wall or ceiling) saves on installation costs. Jetglas-C coating prolongs Panelray heating elements' life. Economy all around!

For specs and more facts, write:

DAY & NIGHT MANUFACTURING COMPANY

855 Anaheim-Puente Road, La Puente, California • 4551 South Racine Avenue, Chicago 9, Illinois

Build your appliance business — and your gas load, too — with DAY & NIGHT

South Carolina LPGA and went away as Miss Southeastern District LPGA. This honor earned her the right to a trip to Chicago in May where she will compete for the Miss National LPGA crown—which, incidentally, was won last year by Nancy Johnson, also from Ninety-Six, S. C.

Each day of the convention was enlivened by marketing sessions. These were designed to show the dealers the fuel sales potential in the fields of flame cultivation, tarkettles, and carburetion.

Highlights of each session:

Flame cultivation—Jack Grundfest, president of Southland L.P. Gas Co., Cary, Miss., called it "terrific in Mississippi." At 5 gal. per acre, it uses 125-150 gal. per day —in the summer." J. W. Gotcher, Gotcher Engineering Co., Clarksdale, Miss., listed its advantages for the farmer. J. D. Charton, AFCO Flame Cultivator Co., Little Rock, said that 75 per cent of the cotton producing acreage in Jefferson county, Ark. (largest cotton producing county in the U. S.) uses flaming. "The potential L.P. gas load in this country is $180 million a year. Average load per cultivator is 4000 gal. One man using flame cultivation is equal to 40 men with hoes."

Tar kettles — J. P. Benjamin, president of Julien P. Benjamin Equipment Co., said that the number of roofing contractors has increased to more than 50,000. As to load potential, he noted that an average-sized tar kettle (115 gal.) burns about 3 1/3 gal. of LPG per hour; an average contractor uses 10 kettles, 260 gal. per day, 1200 gal. per week.

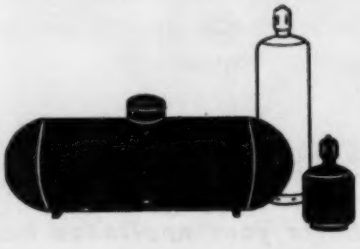
Carburetion—Dave Reber, Beam Products Manufacturing Co., predicted a billion-gal. load in 1961, 3 billion gal. for the future. One fork lift, he said, is the equivalent of 13 domestic customers. One carburetion customer in New England uses about 15,000 gal. per year, had only two service calls in three years. "That load is equal to 972 domestic customers. How many service calls would you get from 972 domestic customers in three years?"

In another program feature, Bill Brenckle of Natural "LP-Gas" Corp., Waukesha, Wis., told about the Milwaukee Gas Unity Plan.

LPG dealer pleads for unity at utility convention

Among the best-received presentations at the Mid-West Gas Association's 56th annual convention (Omaha, late March) was a gas unity talk presented by LPG dealer Walter A. Schuette of Hausgas Inc., Washington, Mo. "Frank," "hard-hitting," "sensible," and "entertaining" were among the appraisals a BPN editor heard from the 430 natural gassers present.

Showing how much the two industries are alike, Schuette gave a capsule history of both, observing that they span the period "From Hitching Post to Parking Meter," the title of his talk.



RECOGNIZE THIS GAUGE?

EXCLUSIVE REMOVABLE DIAL CHAMBER
HI-TENSILE ALUMINUM ALLOY HEAD
SHROUDED STEEL GEAR ACTION
CORROSION RESISTANT STEEL FLOAT
These features insure you a dependable quality gauge every time you buy.
Come by our booth number
101
at the Chicago Convention April 30-May 3. We'll be looking for you!
Free catalog available on request.

Demand Rochester Criterion gauges on your next tank order or order direct from factory.

ROCHESTER GAUGES, INC.
OF TEXAS
2425 CAROLINE • DALLAS, TEXAS
SALES OFFICES: DALLAS; ATLANTA; DENVER; BURBANK, CALIFORNIA; MEXICO 7, D. F., MEXICO; LONDON, ONTARIO

E. CHRISTENSON, MODERN LP-GAS SERVICE, LAWRENCE, KANSAS

"We gained 300 new customers last year, and sold 1¾ million gallons of Texaco LP-Gas. Our sales have increased rapidly since going with Texaco 3 years ago. Texaco is really *jobber-minded.* We get excellent delivery service in difficult weather, too. That's why we continue to sell the best... Texaco."

5 reasons why you can grow with Texaco

1. Texaco is jobber-minded. Proof: 842 Consignees and Distributors of Texaco Products have been with Texaco over 20 years, some over 45 years.
2. Profitable and proved sales policies. Texaco does not compete with its independent Distributors of LP-Gas.
3. Dependable, efficient delivery in a new fleet of tank cars, from 31 strategically located production areas.
4. Immediate acceptance. Texaco LP-Gas is sold under the nationally-known trademark, the famous Texaco red star with the green "T."
5. A product of highest quality – moisture-free.

TEAM YOUR NAME with Texaco for a promising future. Send coupon today: Texaco Inc., LPG Sales Division, P.O. Box 2420, Philtower Bldg., Tulsa, Oklahoma; 3350 Wilshire Blvd., Los Angeles, California; Texex, 237 Seventh Avenue, West, Calgary, Alberta, Canada.

BPR-1

I would like complete information about the possibility of becoming a Texaco LP-Gas Distributor

NAME_____

STREET_____

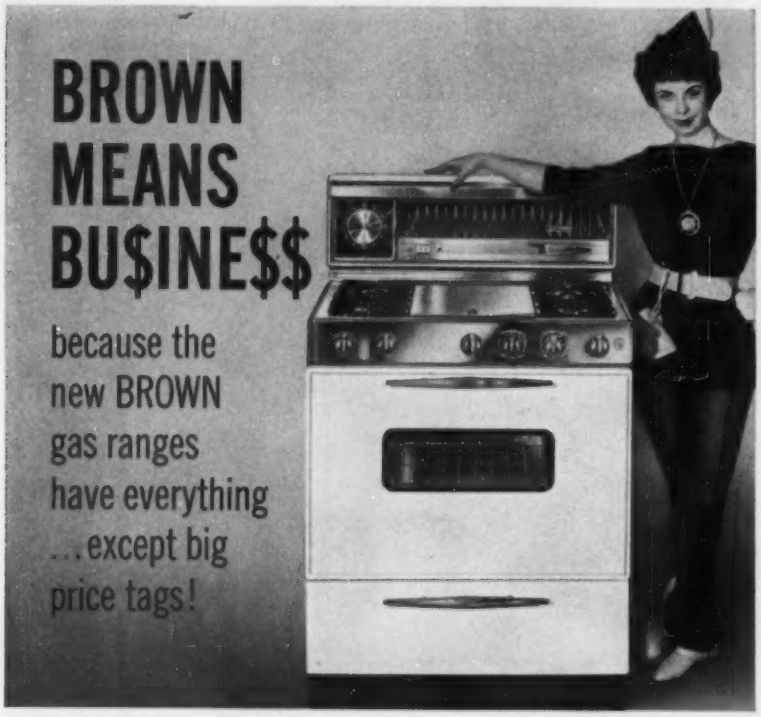
CITY_____

STATE_____

Associations

"This is a time our industry needs vision like it never needed it before," said Schutte, launching into his unity plea. He explained that the electric industry's current all-out effort makes it more important than ever that the LPG dealer hold the load for the gas utility.

The much-needed unity can be achieved by a three-point utility program, Schutte believes. First, the utilities should invite near-by LPG dealers to run a small tie-in ad beneath every utility newspaper ad. Second, the utilities should invite dealers in for a once-a-year "get-better-acquainted visit." Third, the utility should reimburse dealers when it takes customers away from them. Reimbursement plans put into action by Minneapolis Gas Co., Northern States Power Co., and Milwaukee Gas Light Co. were cited, but the East Ohio Gas Co. co-op plan (Feb., '61 BPN) was presented as "the blueprint which all future plans should follow."



BROWN FEATURAMIC gas ranges are everything your customers want—*at the price they want to pay*... Engineered efficiency in modern, sleek lines... Choice of the new built-ins or free-standing models... Every modern convenience incorporated with easy, easy care... All this *and* prices that prompt impulse purchases! Brown is the line that means business... more business for you... immediately!

SEE BOOTH 18 LPGA CONVENTION CHICAGO · APRIL 30-MAY 3

BROWN

BROWN STOVE WORKS, INC · CLEVELAND · TENNESSEE

MAIL THIS COUPON TODAY

Please rush complete information on FEATURAMIC gas ranges BP

NAME_____

COMPANY_____

STREET_____

CITY_____ ZONE____ STATE_____

TAYLOR G. NELSON has been appointed sales manager of Titan Valve and Manufacturing Co., Cleveland, Ohio. He has 25 years experience at the executive level in the appliance control industry.

T. G. Nelson
Titan

G. R. Postlewait
Bastion-Blessing

GEORGE R. POSTLEWAIT has been appointed western regional manager of RegO Division of Bastian-Blessing Co., Chicago. He is replacing EARL M. EVLETH, who has retired from the company.

EDWIN W. BROWN has been named controller of Cylinders, Inc., Linden, N. J. He had previously served with H. K. Porter Co., Inc., of Linden.

D. D. WILLIAMS — from regional manager to newly created position of sales manager of central air conditioning products, Albion Division, McGraw Edison Co., Albion, Mich.

EDWARD J. CROSS has been appointed sales manager of Ardmore Products, Northbrook, Ill. He will cover the eastern area of the U. S., with headquarters in Linden, N. J.

JOHN H. NICHOLS, JR., has been elected assistant vice president of Suburban Propane Gas Corp., Whippany, N. J. He had served as research and development manager.

DON'T BUY STORAGE OR TRANSPORTS UNTIL YOU CHECK MASTER ON . . . ***QUALITY, DELIVERY & PRICE!***

Stop shopping around. You can't buy a better LPG storage tank or transport. Master Quality is always TOPS! There's an extra PLUS when you buy from Master. We meet delivery dates on time and the price is always right. Let us have your specifications today for a quotation without obligation.

ALL SIZES IN T1 STEEL

ALL SIZES THROUGH 70,000 GAL.

2000 S. Front Street
Quincy, Illinois
BAldwin 3-5014

P. O. Box 5146
Dallas, Texas
Riverside 7-2441

MASTER TANK & WELDING

People

CHARLES M. HOOVER has been elected vice president of Geo. D. Roper Sales Corp., Kankakee, Ill. Hoover is also director of marketing.

MRS. CATHERINE SCHONBERGER has been appointed president of The Adams Manufacturing Co., Cleveland, Ohio. J. M. SHULTZ has been appointed vice president; R. P. KALBRUNNER, vice president; M. E. WAYNE, secretary.

ARNOLD H. STEPHENS has been appointed southern California district manager of Grove Valve and Regulator Co., subsidiary of Walworth Co., Oakland, Calif. He had previously served with Hughes Aircraft Co. of L. A.

STAN J. ORMSBY and EVERITT L. SULLINS have joined the sales staff of Brown Stove Works, Inc., Cleveland, Tenn. Ormsby had been with Magic Chef of the same city. Sullins had been with L. M. Taylor & Co. of Dallas.

S. J. Ormsby
Brown

H. E. Brumder
Pressed Steel

HERBERT E. BRUMDER has been elected president of Pressed Steel Tank Co. of Milwaukee, Wis. HERMAN MERKER has been elected chairman of the board, W. L. KILLEN, vice president of manufacturing and engineering.

CHESTER L. PRINGLE has been appointed regional sales manager of Motorola Inc., Chicago. He will cover the Denver, Colo. area. GLENN A. FROBERG, IRA WALKER, and PAUL E. RUSSUM have also been appointed regional sales managers. They will cover the Indianapolis, Memphis, and Dallas areas, respectively.

GLENN A. BARNES — from sales manager of Sequoia Manufacturing Co., San Carlos, Calif., to executive vice president; M. W. STRANSKY— from plant manager to vice president; GARLAND F. KNEIP—from assistant treasurer to secretary-treasurer.

TOM HOLLANDER has been named manufacturer's representative for Modine Manufacturing Co., Racine, Wis. He will cover the Buffalo, New York, area.

ROBERT F. STONE, formerly of Westinghouse and HAROLD G. MONTGOMERY, formerly of Gaffers and Sattler, have been added to the O'Keefe & Merritt Co. (Los Angeles) sales force. LYLE D. KANEKEBERG and EDWARD D. GRUBE has also been appointed salesmen.

G. E. WOODBURY has been appointed secretary and treasurer of the finance and planning committee of Vangas, Inc., Fresno, Calif. E. H. SCHNEIDER has been appointed assistant secretary and manager of administrative services; CLYDE H. CORNELL, manager of the fuel and transportation department; ROBERT CESSNA, southern region manager; and RICHARD H. BRAGG, member of the board of directors.

PUMPS ITS WEIGHT EVERY HALF-SECOND

Here's the pump that profit-conscious transporters have wanted for years. It's Blackmer's new aluminum Model TLG4—gallon for gallon, the lightest LPG pump ever built. Total weight—just 86 lbs. Yet it unloads up to 300 gallons per minute—pumps its own weight in propane every four tenths of a second! You save two ways—a bigger payload and less turn-around time. We make the same pump in nodular iron for equally fast transport loading. Get the full story. Write for Blackmer Bulletin 500.

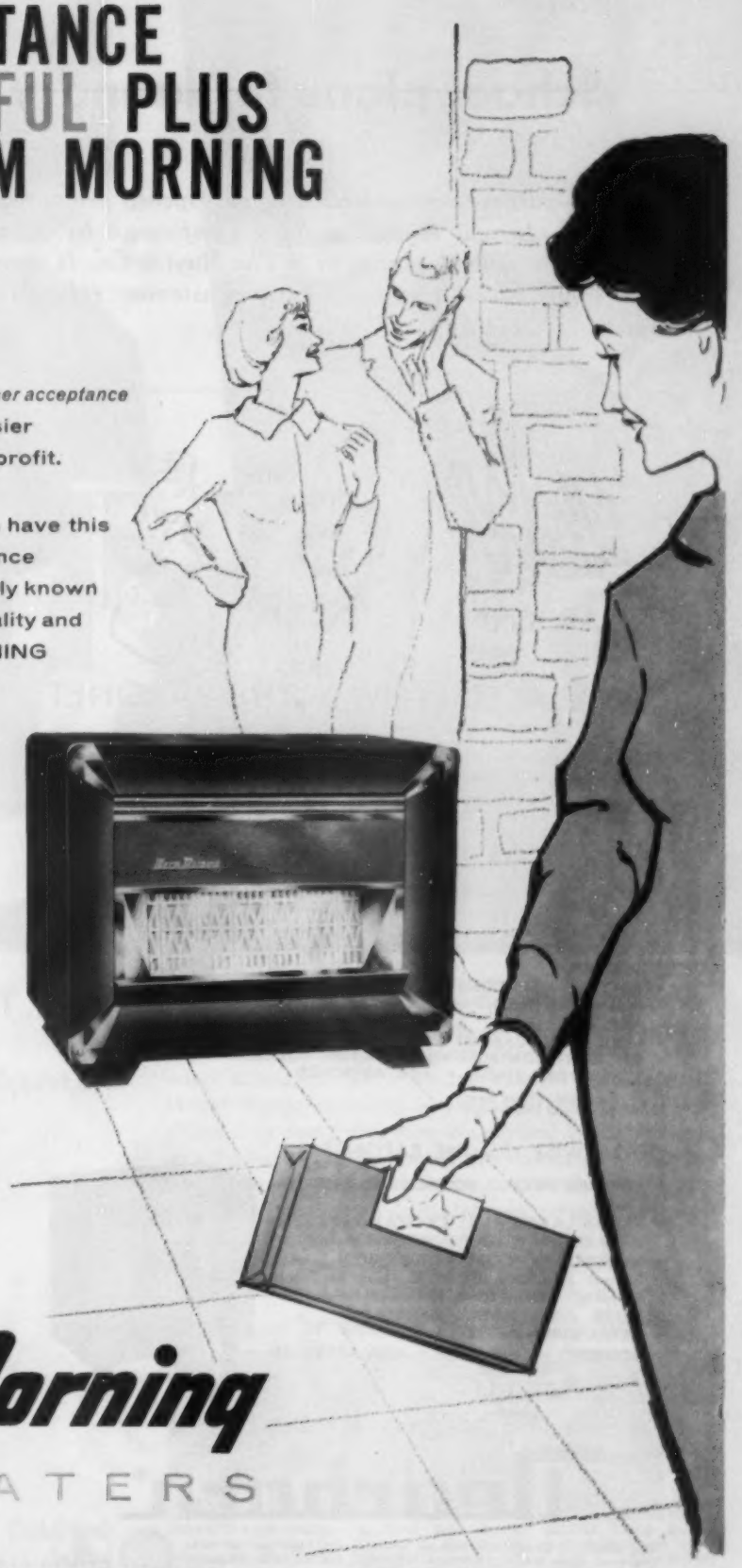
"liquid materials handling"® equipment

BLACKMER / *liquefied gas pumps*

BLACKMER PUMP COMPANY, GRAND RAPIDS 9, MICHIGAN

Find your Blackmer Man under "Pumps" in the Yellow Pages

ACCEPTANCE IS A POWERFUL PLUS ...AND WARM MORNING HAS IT!



Products with strong, loyal *customer acceptance* are the easiest to sell . . . and easier sales mean *more* sales, and *more* profit.

WARM MORNING Gas Heaters have this sales-making customer acceptance that is so important to you. Widely known and long associated with fine quality and top performance, WARM MORNING is a name people *know* and *trust*.

Add to those benefits, the sheer beauty, outstanding features and reasonable prices of WARM MORNING Gas Heaters and you have the winning combination in space heater sales.

Right now, your WARM MORNING Distributor offers attractive early booking discounts, with anticipation or a pay-much-later Fall Dating plan. Write for literature and prices today.

Warm Morning

GAS HEATERS

LOCKE STOVE COMPANY 114 West 11th St., Kansas City 5, Mo.

School plans for laundry appliances

Here's a two-part report condensed from a speech presented at the Ninth Annual Home Laundry Conference by Max Fuller, director of field education at The Maytag Co. It may provide some ideas for your future-customer relations program.

NEW IN THE DEARBORN FAMILY

THE SEALED-FLOW • THE BARONET

VENTED GAS AREA HEATERS

These two newcomers to Dearborn's heater lines are lively with special features that will build sales. What's more, they have the traditional quality that has drawn more than 2,000,000 dollarwise customers to Dearborn.

DOLLARWISE IT'S THE SEALED-FLOW

- **HERMETICALLY SEALED COMBUSTION CHAMBER** ... uses one hole in outside wall for air intake and venting.
- **SNAPPY, PRECISE INSTALLATION** with full-scale template.
- **ANCHOR FLOAT CONSTRUCTION** ... lets chamber expand and contract without hindrance, prevents noise.
- **COOL SAFETY CABINET • FORWARD HEAT FLOW**
- **UP-FRONT CONTROLS • HIGH CROWN BURNER**
- **COPPERTONE FINISH • AGA APPROVED**

Available in Three Sizes: 35,000, 25,000 and 10,000 BTU'S

DOLLARWISE IT'S THE BARONET

- **POPULAR PRICE ... ECONOMICAL INSTALLATION**
- **EXTRA LARGE HEAT EXCHANGERS** ... for faster circulation, greater warm-air volume.
- **HANDSOME, COMPACT DESIGN** ... with neutral BOLERO BROWN finish for room blending ... Honeycomb Louvered front.
- **SUPER CONVENIENT CONTROLS**
- **EXTRA QUIET BLOWER**
- **ROUNDED BASE FLANGE • AGA APPROVED**

Available in Three Sizes: 65,000, 50,000 and 35,000 BTU'S

Dollar-wise.. it's Dearborn®

Get details of Dearborn's clean-cut selling policy from any of these regional sales offices: Atlanta, Chicago, Dallas, Los Angeles, San Francisco.

UTILITIES

What they're doing. A recent American Home Laundry Manufacturers' Assn. survey brought replies from 239 gas and electric utilities located in all parts of the country. Nearly 54 per cent, 129 utilities, replied that they placed laundry equipment in schools.

Of the 129, 68 or 53 per cent make the equipment available on a gift consignment basis. Thirty-two, or 25 per cent, do it on a regular-cost basis. The remaining 28, 22 per cent, have a special school plan which falls somewhere between the outright gift and the regular cost.

Of the 219, 120 (93 per cent) have some type of regular replacement program. Replacement periods vary from six months to six years, with the majority of them being two years or less.

Of the 129, 112 (87 per cent) handle all necessary service and maintenance as long as the appliance is in the school.

Of the 129, 111 or 86 per cent are satisfied that their school plans are working effectively.

What they want manufacturers to do. From manufacturers, the utilities want more information about products, fabrics, laundering aids, laundering procedures, effective ways to demonstrate home laundry equipment, and the care and use of each appliance. They also want training aids, including training sessions for their personnel (conducted by factory representatives), printed materials which are helpful to the teacher, printed materials designed to stimulate the teenagers' interest in home laundry, and the kinds of visual aids that might enliven classroom instruction.

They want more active support for school plans. They want manufacturers to encourage distributors and dealers to take a greater interest in school programs. And, they want some help in developing

RESPONSIBILITY

is a frame of mind

When your customer buys a gas range, she seldom notes the maker of its controls and burners. Thus it is *your* reputation that's on the line should these critical components ever develop difficulties. As a leading controls manufacturer, Harper-Wyman recognizes in this fact an enormous responsibility . . . a moral obligation to safeguard your reputation with the finest products possible. This awareness of our responsibility to you is more than a policy and tradition. It's a special frame of mind shared by every person in the company. Its meaning? When control or burner has passed from our hands to yours, and then into a housewife's, you can rest assured she'll be a satisfied customer for years.

you're safer selling HARPER controls . . .

UNI-MATIC Flame Selector . . . the most "intelligent" Burner-with-a-Brain" obtainable.

ALL-TEMP Oven Control System . . . the new low temperature system for greater oven versatility.

ALLTROL Center Simmer . . . the **original** and finest "2 in 1" measured-heat burner.

*A.G.A. Mark © Am. Gas Assoc., Inc.

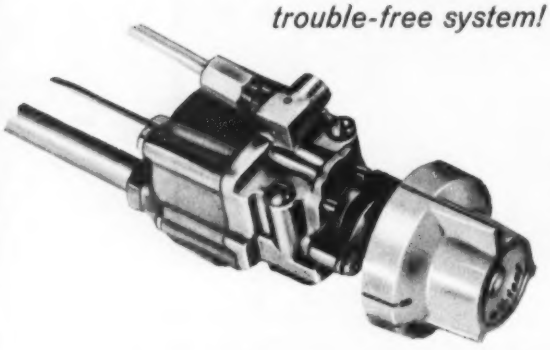
HARPER-WYMAN COMPANY
8550 SOUTH VINCENNES AVENUE
CHICAGO 20, ILLINOIS

see reverse side for complete information on the ALL-TEMP oven control system

NEW from Harper Wyman...

the *all-temp* low temperature oven-control system

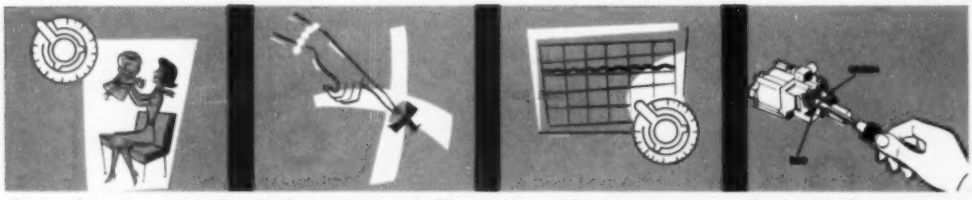
Adds "keep warm" benefits to oven performance . . . in a new and simplified, trouble-free system!



Women have dreamed for years of enjoying "warming oven" convenience. Now Harper research brings this dream to life with the ALL-TEMP Oven Control System. Provides full temperature range (550° down to 140°) *plus* automatic ignition . . . all in one remarkably simple system. And what a selling feature it gives you!

With the ALL-TEMP system, a homemaker can now prepare meals well in advance of the dinner hour . . . delay meals for late arrivals. She can use her oven to warm plates . . . thaw frozen foods. ALL-TEMP assures her longer, service-free reliability, too, because it's far simpler in design. Result? Your ranges not only sell *faster* with ALL-TEMP Oven Controls . . . but they *stay* sold, too.

only ALL-TEMP Controls assure all these advantages



Accurate oven control down to 140° F. New "keep warm" temperature range introduces an entirely new dimension in oven versatility.

No buttons to push. Simply light pilot and oven is ready for use. Combines maximum safety with the utmost in convenience and reliability.

No wide temperature variations. Operating within tight tolerances, the ALL-TEMP Cycling system minimizes temperature fluctuations.

Designed for easy adjustment. All adjusting screws are easily accessible and color coded for quick identification . . . foolproof installation.

FREE: Full data on the ALL-TEMP Oven Control System is available on request. Send today for latest literature.

HARPER-WYMAN COMPANY 8550 SOUTH VINCENNES AVENUE CHICAGO 20, ILLINOIS

All-temp low temperature oven controls meet the basic specifications for A.G.A. "Gold Star Ranges"

School laundry

a workable and economically feasible replacement program.

What they want teachers to do. The utilities would like to see teachers become more aware of the educational value of teaching proper laundry procedures. They would like to see laundry equipment used in both home economics labs and housing units. One utility, for example, commented that laundry equipment is used 95 per cent of the time as a convenience to the school and only 5 per cent of the time as a teaching tool!

Many utilities remarked that some home economics departments are not very efficient in their care of appliances. They emphasized that the idea of the school plan is that proper care and use of equipment be both taught and practiced in the classroom.

MANUFACTURERS

What they offer. Eleven of 14 manufacturers contacted in an AHLMA survey reported school plans currently in operation. The twelfth said a school plan had been approved and would be operating very shortly. Only two manufacturers (14 per cent) have no school plans. Thus, any school system in the United States, whether public or private, can secure for classroom and laboratory purposes laundry equipment (including gas dryers) under the terms of somebody's school plan.

All 11 report that their school plans offer laundry equipment to educational institutions at a special price. Their plans are available to both high schools and colleges, both public and private. All plans are operated by the parent company, distributors and dealers having no separate plans of their own.

All 11 also report that their plan may be utilized only when the appliances are purchased for classrooms, laboratories, or home management houses. No manufacturer currently offers a plan to any institution wishing to use the appliances for cafeterias, gymnasiums, swimming pools, dormitories, fraternity or sorority housing units, faculty housing units, or any other non-instructional purpose.

Seven of the 11 manufacturers report that their plan provides for regular replacement of laundry appliances at no further cost to the educational institution. Four of the seven limit replacement to a five-year period while the remaining three set no time limit. One specifies annual replacement while two say it must be within 18 months. The remaining four indicate replacement whenever a comparable new model is introduced.

How the plans operate. All 11 manufacturers include delivery and service in their quoted school prices. One does not include the cost of installation in high schools while two do not include it for colleges. None includes the cost of bringing gas, hot and cold water, electricity, and drain connections to the appliance.

Turn a prospect into a pleased customer with TEMCO's newest salesmaker, the Al-Kove, ideal for limited space areas.
This all-purpose gas heater packages all the comfort and service features your customer wants, into 1½ square feet of floor space.
And look what else you can tell that prospect!—
(1) 50,000 BTU input
(2) Fastens to wall with only 2 screws
(3) Famous Ceramiclad® Heat Exchanger carries a full 5-year guarantee against rust and burn-out
(4) Top vented to save space, stands 58" high
(5) Modern picture-frame cabinet with high temperature silicon finish
(6) Low initial cost, low operating cost
With the *new* TEMCO Al-Kove Gas Heater, you can get those sales you've been losing because you didn't have a heater to fit your customers' small space requirements.

Sell TEMCO—You'll sell to everybody!

TEMCO, Inc.
NASHVILLE 9, TENNESSEE
"Gas Heating Specialists for the Nation"

Check with your TEMCO Distributor or mail this coupon for complete information about the new TEMCO Al-Kove Gas Heater.

TEMCO, Inc. Dept. BF
Nashville 9, Tenn.
Please send me more information about the new Al-Kove vented gas heater.
NAME _____
STORE _____
ADDRESS _____
CITY & STATE _____

See the new all-purpose TEMCO "Al-Kove" heater, as well as other fine TEMCO products, on display at the National LP Gas Show in Chicago, April 30 - May 2. Booths 40-41.

School laundry

The service included with the price varies. In all cases, the school gets the same warranty the individual purchaser would get. In most instances, this is a one-year warranty, but there may be an extended warranty on certain parts. Most companies specify certain circumstances under which the school is required to pay for service. Six say the school must pay when the malfunction is due to accident, abuse, or loss of parts. One manufacturer never asks the school to pay for service or maintenance. Another indicates that service charges depend upon the individual contract. The rest say the school pays for service and maintenance only when the appliance is out of warranty.

When telling the school where to go for service, the manufacturers offer about as confusing a picture as when they specify whom to contact to buy an appliance. Nine recommend the local dealer; seven, the local distributor; two recommended servicing agencies; one, the public utility; one, the factory branch; and one, the factory.

What they think about the plans. Ten out of 11 manufacturers felt that their school plan provides a useful tool for developing future customers and that the teachers generally made good use of the equipment once it was installed.

When asked what the schools might do to insure better use of appliances they already have, the manufacturers supplied a variety of answers. Four felt careful demonstrations to all teachers and students by home economists or other factory personnel would be highly desirable; but they were quick to admit this would be impossible with present manufacturers' home economists staffs. Three suggested a well-developed lesson plan showing the teacher how to make the best use of home laundry equipment. Two suggested teachers devote more time to home laundry equipment. One suggested the necessity of keeping the equipment up to date.

Six of the manufacturers said they received complaints about some aspect of the school plan.

The chief complaint is failure to replace appliances as provided in the school plan. Appliance replacement is also the manufacturers' biggest problem. Five of the seven who provide for annual replacements report that they have trouble in carrying out this part of the plan. While many schools want free annual replacement for an indefinite period, some do not mind three- or four-year-old appliances, feeling that this approximates what is in the average home.

Only two other complaints from schools were mentioned. One was the date of replacement — some schools do not like to have appliances changed during an academic year. The other was the fact that special school prices are not available when appliances are used for non-instructional purposes. ■

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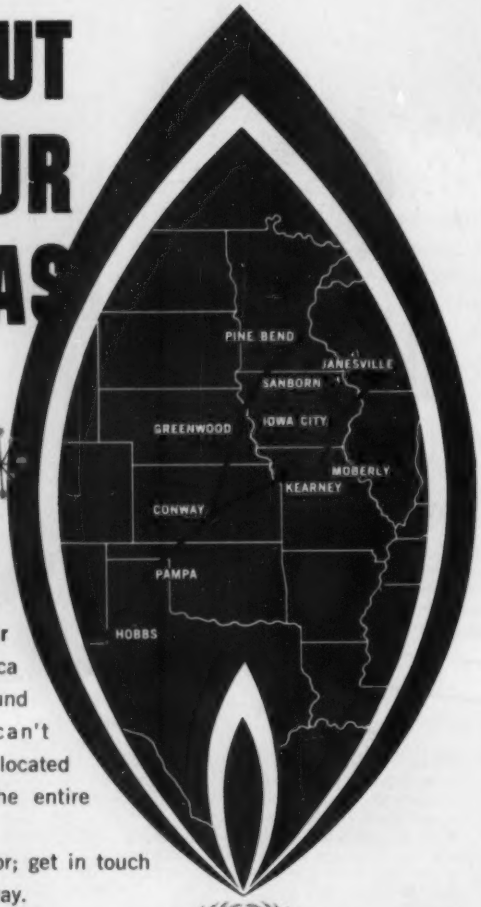

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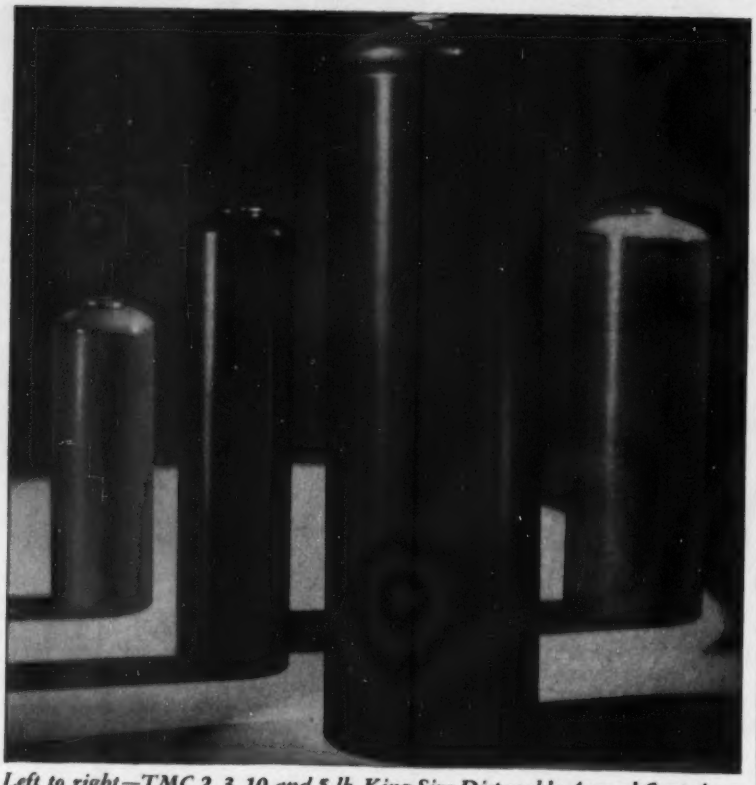

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"Empty" tank involved in fire

A truck driver spotted a twin tank liquefied petroleum gas semi-trailer with 4500 gal of propane at an unloading platform unhooked and left with the towing unit to do other hauling. Following the unloading of the tanks, plant personnel shut off the unloading pump and its suction valve. However, valves on the tanks were not closed nor were hoses disconnected when unloading was completed.

When another loaded transport vehicle arrived at 11 P.M., its tank semi-trailer was parked so that the truck tractor could be used to relocate the "empty" semi-trailer. During engagement of the fifth wheel, the hoses from the "empty" that had not been disconnected were broken. It is reported that liquid came out at the rear trailer connection, undoubtedly due to a low (25°F) atmospheric temperature which caused caused vapors in the "empty" tank to condense. Ignition for the intense fire which followed could have come from a unit heater in a nearby office. From 150 to 200-100-lb storage cylinders stored nearby became involved in the fire. *NFPA Fire News*, Feb. 1961.

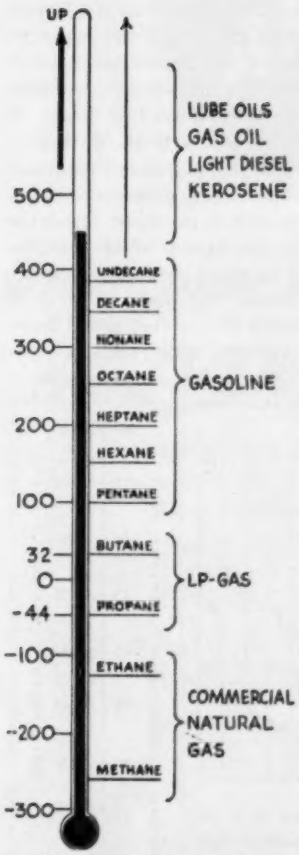
Flow valve did not operate

During transfer of liquefied petroleum gas from an 1800-gal tank on a cab-over-engine truck to a dwelling storage tank, a flexible connection on the discharge side of the pump broke. The leakage was not great enough to actuate the excess flow valve, however, and before the driver could shut down the pump and close the valve, the gas ignited. Fire fighters knocked down the fire with one 1-inch high pressure booster line and one 1½-in hose stream and then closed the shutoff valve. *NFPA Fire News*, Feb. 1961.

The important differences between LPG and gasoline

HOWARD REINHART • Zenith Carburetor Division

"LPG is really a simple fuel"



Gasoline contains seven compounds. LPG, only one or two.

Hundreds of thousands of words have been written about propane in its role as a motor fuel. Yet confusion persists as to the reasons why it performs as it does. Its proponents know it is superior to gasoline. They have seen this truth demonstrated time and again. Yet many of them don't know just why.

The answer, reduced to its simplest terms, is that gasoline and L. P. gas are two very different fuels. As indicated by Fig. 1, propane is by far the less complex of the two.

This thesis has been developed very effectively by Howard Reinhart, a veteran carburetion specialist, in a lecture which he has presented many times across the country. His talk tells the story so well and understandably that BPN prevailed upon him to adapt from it this article.

BEAR THIS FACT IN MIND when considering the fundamental differences between gasoline and propane: Gasoline is a far more complex product than propane.

With gasoline, we usually have seven hydrocarbon compounds, with boiling ranges varying from 95 deg F to 410 deg F. Each of the separate compounds in gasoline also has its distinct characteristics such as octane number and specific gravity.

For best results, the refiner must blend all seven compounds in the right proportions. These will vary according to seasons (see Fig. 2) and geographical locations. In addition, he must provide a fuel with high anti-knock value. This is done either by using suitable refining methods or by adding metallic compounds. In propane we are dealing with a single hydrocarbon compound, one boiling point, and an inherently high octane value. Of course, in the summer months when temperatures are high in certain localities, butane is blended with propane to keep the internal pressure of storage tanks at a reasonable level. And with this combination of components we have a mixture that has a low boiling point of —44 deg F and a high of 33 deg F. However, both boiling points are so low that for practical purposes they could be the same. The blends can vary from 40 per cent butane—60 per cent propane to 100 per cent propane without any appreciable difference being evident.

The motorist has full confidence that the reputable marketer will give him the proper complex hydrocarbon fuel—gasoline—for his car. Then why should he not have such a *simple* fuel as propane? He would if we all had a clearer understanding of our own fuel. Let's learn the facts, and then all "sing the same song."

EQUIPMENT FOR BOTH FUELS. With gaso-

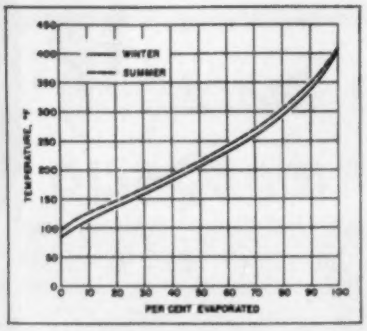


Fig. 2 ASTM distillation curves of typical summer and winter gasoline illustrate variations in composition of the fuel.

Power

line only a light-gauge tank is needed since we do not have any internal tank pressure to deal with. And since the fuel is drawn away from the tank, there is a vent to the atmosphere. In all modern installations today, we have a pump to furnish gasoline to the carburetor. Usually there is a filter between the pump and the carburetor.

Most of us are familiar with the average gasoline carburetor, a device designed to give the proper proportioning and mixing of fuel to air for all variations in load and speed. Only a small part of the fuel is vaporized at the carburetor; the remainder is merely atomized. Some vaporization takes place in the manifold, but the heavy ends of gasoline are vaporized during the compression stroke in the cylinder.

When we look at the intake manifold (Fig. 3), we can see that the heavy ends of the fuel tend to go to the center cylinder, starving the end cylinders. To compensate for this, it is necessary to provide a mixture rich enough for the end cylinders. Propane does not present this problem as the gas is dry in the manifold.

Another point with gasoline: The cross section area of the manifold (Fig. 4) must be such that the velocity will be high enough to keep the atomized fuel entrained. Yet it must not be too small to affect the volumetric efficiency. Heat must be supplied to the intake manifold to vaporize the gasoline (Fig. 4). During idle, a rich mixture is necessary for smooth running, with a resultant high CO content in the exhaust.

For propane it is necessary to have a pressure vessel. With an average ambient temperature of 70 deg F, pressures will be 110 psi; at 100 deg F this pressure will rise to 170 psi (see Fig. 5). Obviously, venting is not required as it is with gasoline, and there are no losses due to evaporation. Propane inherently provides pressure to give a constant flow to the regulator.

Let us digress for a moment and consider, in a broad sense, what is required of a fuel in an internal combustion engine. Be it gasoline or propane, the fuel must be in such a physical state that combustion will take place in the cylinder of an engine. Neither fuel will burn unless it is vaporized and mixed with the proper amount of air. In this respect the two fuels are alike.

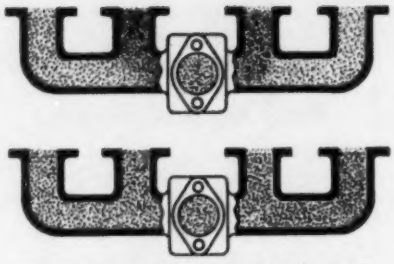


Fig. 3 Cross-section views of intake manifold show differences in distribution of fuels. With gasoline (top), heavy ends tend to go to center cylinders, starving the end cylinders. With propane (bottom), distribution to all cylinders is equal.

As previously stated, there is this difference with gasoline: limited vaporization takes place at the carburetor, some is vaporized in the intake manifold, and the remainder is vaporized within the combustion chamber. With propane, total vaporization occurs even before the fuel reaches the carburetor. Therefore, when we are striving to obtain the correct air/fuel ratio with each, we must remember we are dealing with fuels having differing characteristics. Gasoline is a liquid, propane a gas. Different types of carburetion equipment are needed.

In gasoline carburetors, we must maintain a definite fuel level; to do this, we use a float. With propane, since it is a gas, we maintain a predetermined pressure; to do this, we use a pressure regulator having a diaphragm which operates a valve in much the same way as the gasoline float operates a valve to maintain the correct liquid level. Because of the wide pressure vari-

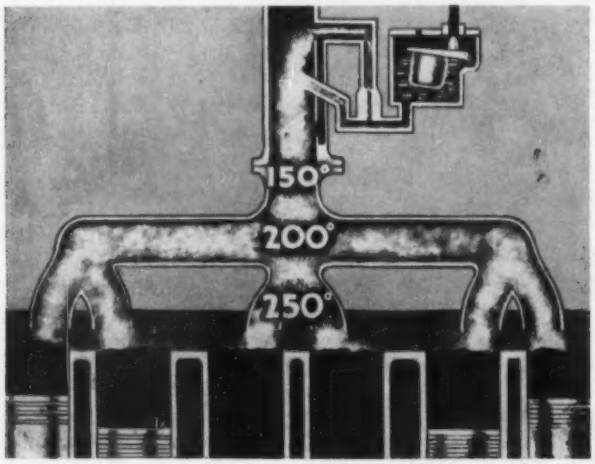


Fig. 4 Heat must be supplied to the intake manifold in order for gasoline to vaporize.

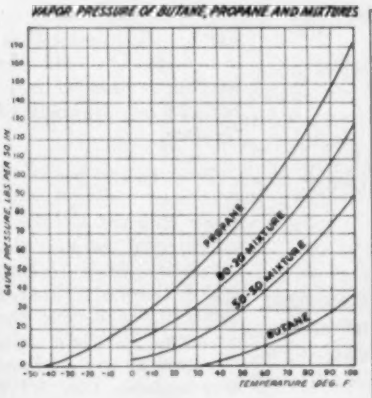
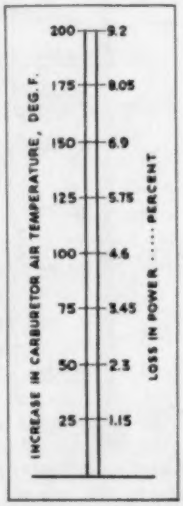


Fig. 5 (above) Vapor pressure of L. P. gases are sufficient to give constant flow to the regulator. Fig. 6 (right) How increase in heat increases power loss.



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ation from the supply tank, a two-stage regulator is ordinarily used to give a reduced, constant pressure essential for correct metering.

In addition to regulating the flow, we must counteract the refrigerant action that occurs when a liquid is expanded to a gas (vaporized). Since propane vaporizes at —44 deg F, it would be only a matter of seconds before the units would be completely iced up. To prevent this, we channel heat from the engine to the regulator-vaporizer.

Several variations in equipment are available—for example, first- and second-stage regulators and vaporizer in an integral unit, and single-stage regulator and vaporizer, with the secondary regulator being an integral part of the carburetor. All systems, however, are designed to reduce the variable tank pressure to a low steady pressure (in most systems this is subatmospheric at the inlet to the carburetor), and to meter vapor with air in correct proportions for combustion.

The conventional propane carburetor is a simple-throated throttle body with a venturi which creates a vacuum (pressure differential) in the secondary, causing the diaphragm to open the valve and allowing vapor to flow in accordance with engine demands and in the correct air/fuel ratio.

With gasoline, on the other hand, liquid is drawn from the float chamber of the carburetor. To maintain the correct mixture ratio for all operating conditions, air bleeding, compensating jets, accelerating devices, and other features are required. Compare this with a simple propane carburetor where engine demands for efficient combustion mixtures are satisfied with a venturi. Some models, of course, do have an economizer arrangement, which usually consists of a means for decreasing either the size of the fuel inlet passage or the pressure to the carburetor from the final stage regulator.

Keeping in mind the differences between a partially atomized fuel and a dry gas, it is easy to visualize the manifold requirements of each. With the atomized gasoline, designers must make provisions to apply exhaust heat to assist in further vaporization, and velocities must be high to keep the liquid globules entrained. But with propane, neither heat nor velocities are critical, since the fuel is already vaporized before reaching the manifold; this in itself obviates the need for high velocities. We can take advantage of this fact by having a manifold of greater cross section area with a resultant higher volumetric efficiency.

Distribution of propane is very good compared with gasoline, and this is particularly so at idle. With a cool manifold and larger cross section area both power and economy with propane are greatly improved (Fig. 6).

FIGURE 7

COMPARISON OF GASOLINE & PROPANE CHARACTERISTICS

	Gasoline (C_8H_{18})		Propane (C_3H_8)	
1. Mechanical equivalent of the heat of combustion of the correct mixture per unit volume of charge (60°F —760 mm.)	42.10 ft. lbs. per std. cu. in.		41.63 ft. lbs. per std. cu. in.	
2. Volume ratio of products of combustion and inlet mixture	1.058		1.044	
3. Highest useful compression ratio	Depends on engine design and octane #		Depends on engine design	
4. Heat subtracted from mixture	127.8 B.T.U. per lb.		None	
5. Effective volatility (% vaporized when inlet valve closes)	100% or less		100%	
6. Composition of products of combustion in the correct mixture	Per mol of gasoline	%	Per mol of Propane	%
	CO_2 = 8 mols	12.4	CO_2 = 3 mols	11.6
	H_2O = 9 mols	14.0	H_2O = 4 mols	15.4
	N_2 = 47.25 mols	73.6	N_2 = 18.87 mols	73.0

COMBUSTION characteristics of gasoline and propane do not differ radically, but there are some points worth consideration (see Fig. 7). First, as we all know, when we have the right proportions of fuel and air and the mixture is ignited, we have combustion or burning; this is true whether it's in a stove or an enclosed cylinder. This burning creates heat, which in turn causes the gas or air involved to expand.

In one case the air has no boundaries. But with a burning charge in a closed cylinder, when the gases try to expand, there is no escape, so we have a pressure rise. This pressure pushes the piston.

Remember, gasoline is *partially* vaporized in the cylinder; the amount of vaporization is greatest before the engine has reached operating temperatures. Therefore, to support combustion more fuel is needed in order that there will be enough of the lighter fractions to support combustion. Considering the higher manifold velocities, and the fact that the liquid has greater weight than the air, it is easy to see that those cylinders in the direct line of flow will receive the wet fuel while the others will receive a leaner mixture. This explains why, to have a mixture rich enough for the starved cylinders, we must supply a richer mixture to the other cylinders.

This is the key to maintenance of an engine: the wet fuel tends to wash down the cylinder walls, removing the protective film of oil, and further aggravating wear by causing crankcase dilution.

With propane these problems do not exist. As mentioned before, a dry gas (homogeneous mixture) flows through the manifold to each cylinder, and it is only necessary to have an air/fuel ratio commensurate with near-ideal combustion requirements, and not a compromise because of poor distribution.

The foregoing also explains why with propane the carbon monoxide content can be maintained at a level low enough to have safe and healthy operations inside a warehouse. This is one reason why so many lift trucks have been converted.

With propane it is possible to

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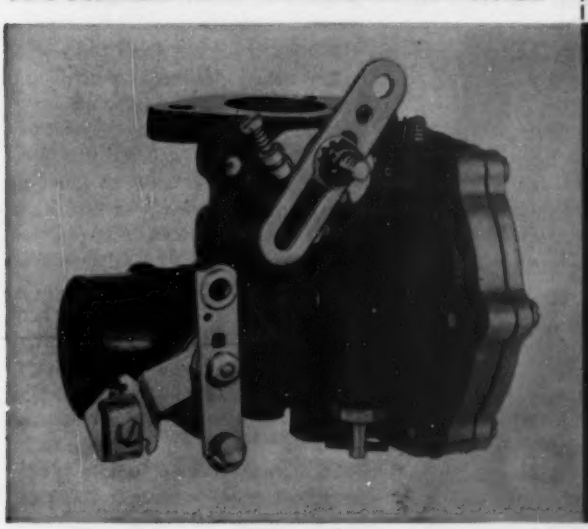

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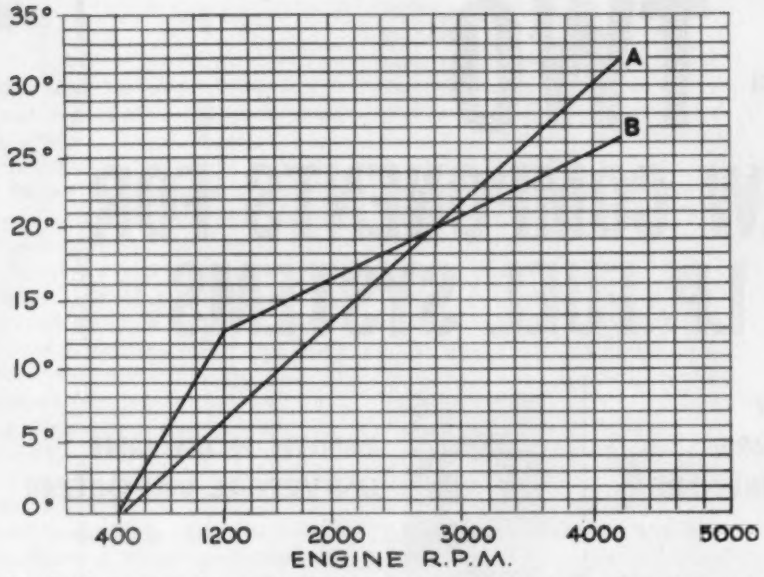

Fig. 8 Advance curve for gasoline ("A") has a greater advance over the entire range; propane curve ("B") flattens out.

Power

operate at or near the chemically correct air/fuel ratio at all load and speed requirements, even at idle.

This is not possible with gasoline, and due to the conditions already touched on, it is necessary when idling to use a rather rich mixture. This results in an exhaust with high CO content.

Today there is very little difference in octane values of a good gasoline and propane. Gasoline has been raised to over 90, and premium gasoline will average around 98.

Two universities, one of the outstanding fuel laboratories, and the fuel research division of one of the car builders all give propane an octane rating of 98 to 99. Due to certain factors in fuel and engine design, propane does show a high degree of sensitivity, and for this reason the octane value can drop, and does under certain operating conditions.

Generally, with equipment of late vintage—especially lift or fork trucks—we need not be concerned with raising the compression ratio. Since both LPG *and* gasoline are high-octane fuels, most companies have already provided a high compression head.

IGNITION. For a charge to ignite in the combustion chamber, two things are necessary: the mixture must be within the limits of inflammability and the spark at the plug must be hot enough.

Gasoline has about a 39 per cent wider range of inflammability limits than has propane. Therefore the adjustment of the mixture is less critical. With propane, if the mixture is several ratios on either side of the theoretically correct mixture, our power will drop off. And in starting the engine, if we are not within the limits of inflammability, we will experience hard starting.

The ignition temperature for propane is about 25 per cent higher than gasoline; here again we have an influencing factor in starting. With propane, the ignition system must be in good shape to provide a good hot spark.

These differences in ignition characteristics between propane and gasoline are evident in the advance curves for the two fuels. Practical experience has established that when converting most engines, we can advance the ignition timing as much as 19 deg. (Some engines, however, require less.) By plotting the two curves for gasoline and propane, we can see how they differ (Fig. 8). The advance curve for gasoline has a greater advance over the entire operating range, while the propane curve is flatter.

From this it is reasonable to assume that here are two fuels with different burning characteristics. Gasoline ignites at a lower temperature, but has a slower accelerated flame propagation. Propane, on the other hand, has a higher ignition temperature with a higher accelerated flame propagation.

In analyzing this, we can see why the differences exist. In the case of gasoline, we have to deal with two facts: some of our heavy ends are still not thoroughly vaporized, and our flame propagation has to contend with a heterogeneous mixture made up of seven compounds, each with its own ignition temperature. But in propane we have a single gaseous compound with one ignition temperature for the entire volume. To put it in simple terms, propane burns faster but takes more time to start burning.

Simple as the above seems, there is a great deal more to the subject. There is still much to be learned about the process of combustion with propane.

It has been only within the past two years that real research on propane ignition has been carried on by some of our largest laboratories. But it is only a matter of time before there is as much known about the combustion process of propane as there is now about other hydrocarbon fuels.

POWER. Let us from the outset differentiate between power and economy. When considering economy, we speak in terms of volume, or gallonage. In making comparisons of economy between gasoline and propane, then, we think in terms of gallons. But in comparing the power output of the two fuels, we talk of weight.

Power is a product of heat energy per pound of fuel, modified by such variables as engine design, breathing ability of the induction system, correct ignition setting, and the process of combustion. Stated another way, power is the net useful work we obtain from the available potential.

Thus, the Btu content per pound is the criterion in establishing relative outputs. Most commercial propane has a Btu value of 21,000 per pound, while gasoline has about 20,500. However, this advantage for propane is only in the order of

about 2 per cent. Also, it should be pointed out, Btu-per-pound is by no means the only factor to be considered in establishing relative power ratings. We must remember, too, that with either fuel we are using only about 29 per cent of the available potential.

However, gasoline weighs more than propane, varying from 5.9 to 6.2 lb per gal according to the blending of the various hydrocarbon compounds. Propane weighs only 4.23 lb per gal. Therefore, there are more Btu per gallon in gasoline than in propane, gasoline having 127,000 and propane 91,500.

Theoretically, if only Btu per gallon were considered, an engine should get better mileage on gasoline than on LPG. But when all the other factors are considered—improved distribution, smoother and more effective operation during idle and part throttle with a somewhat leaner air/fuel ratio, avoidance of enrichment through the use of a colder manifold and the elimination of an accelerating or enriching device—propane will show a better consumption record than gasoline on many installations.

One thought before concluding: There are many facets to every phase of the fuels subject. Each is a suitable subject in itself. In a brief treatment such as this, it is possible to cover only the broad aspects of the subject. These generalizations are susceptible to many variables, any or all of which will influence the operation of a particular engine.

CONCLUSION. Propane is a simple fuel when compared with gasoline. So are the components in a propane carburetion system when compared with their gasoline counterparts. Dilution and its results, which are common when gasoline is used, are eliminated. Distribution problems, which are formidable in gasoline systems, are alleviated. Exhaust fumes are almost totally free of carbon monoxide. From a practical view, in most installations, consumption is no greater with propane than gasoline. There is no power loss with propane.

And propane is as safe, if not safer, than gasoline. There are many case histories to bear this out. ■

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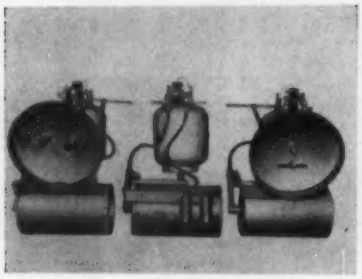

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"Visible" gauge answers storage-tank problems

Circle 3 on Readers' Service Card

The new Taylor 4102C master "Visible" gauge has been developed to answer many storage-tank gauging problems. The gauge mounts in a 2- or 2½-in opening in manway cover or in tank. Mounting the gauge in the top of the storage tank provides visibility from ground level (GEC 540). Squibb-Taylor, Inc.

New flame-shaped table set ideal for promotional use

Circle 5 on Readers' Service Card

The new style flame-shaped (GEC 550) cream and sugar set is ideal for gas company promotional use. Each piece is 6-in high, and has several additional uses. The creamer also serves as a bud vase and sugar bowl, as a planter. They may also be used to hold pencils, long fireplace match sticks, etc. Handy Flame.

Free standing gas ranges completely redesigned

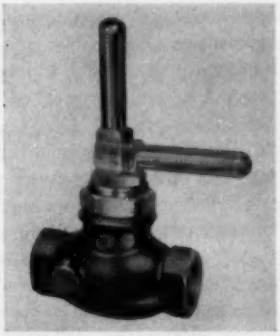
Circle 2 on Readers' Service Card

These free-standing domestic gas ranges have been redesigned by new styling in the backguard, valve handles and door handles. The models (GEC 240) are available in the 36-in range and the 30-in range. Optional features include burner-with-a-brain, rotisserie, glass windows, simmer burners. Welbilt Corp.

New "Al-Kove" space heater is marketed in U. S.

Circle 4 on Readers' Service Card

The new "Al-Kove" gas heater was developed for space problems in Canadian homes; it is now being introduced to the U. S. market. The 50,000 Btu heater takes up approximately 1½ sq ft of floor space and attaches to the wall with two screws. Designed for alcove installations, it can be adapted to other situations (GEC 420). Temco, Inc.



Quick-acting valves have fast shut-off, fast opening

Circle 6 on Readers' Service Card

The new Rego 7554S and 7554SA valves have been made for use on LPG-fired crop driers. With instant shut-off and fast-opening control, the valves are ideal for LPG-charging manifold hoses or stationary fuel transfer hoses and other applications. Valves (GEC 820) are constructed with ductile iron bodies. Bastian-Blessing Co.

THE SECRET'S IN THE SCREEN!

Better Strainer Action... 50% Less Pressure Drop

40 MESH FOR PUMPS
80 MESH FOR METERS
BIG HEX FOR EASY WRENCHING
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POSITIONING GROOVE FOR SCREEN
TAPER IN STRAINER BODY GUIDES SCREEN INTO PROPER POSITION
¼" PLUGGED HOLE FOR INSTALLATION OF BLOW OFF VALVE IF DESIRED
PERFORATED METAL SCREEN CAGE, SEAM WELDED WITH WIRE MESH SCREEN INSIDE SOLDERED AT BOTH ENDS.
HIGH TENSILE STEEL BOLTS WITH HEX HEADS

You get surer protection against foreign-matter damage to pumps and meters by using Smith strainers—the only strainers made exclusively for LP-Gas. Mesh screens trap small particles that slip through the perforated metal holes used in other strainers. Cleaning is easy. Guide grooves position the screen correctly on replacement and tapered seat in strainer body (see illustration) prevents breakage and buckling. Smith strainers have less than half the flow resistance of perforated metal strainers and they cut down transfer time.

Construction specifications exceed latest safety code requirements. Working pressure of malleable iron body is 600 p.s.i. WOG, test pressure 2000 p.s.i. Reducing sizes (3" x 2½", 2" x 1½", etc.) eliminate use of steel bushings and extra pipline joints. Insist on Smith strainers on new equipment and for replacements. Write for complete details.

- **Heavy steel flange opening to strainer screen. No large threads to rust and freeze.**
- **No large blow-off hole in strainer opening; no steel plug to buy.**
- **Interchangeable with some other makes. Write for dimension table.**

A COMPLETE LINE OF LP-GAS PUMPS
(3 Models Illustrated)
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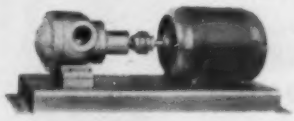
A complete line of truck pumps from 20 to 100 GPM capacities. Flanged models available.



Volume transfer pumps from 20 to 150 GPM. Flanged models available.

Fast action small tank pumps; 10 and 15 GPM models. Will fill all small tanks as fast as any larger pump.

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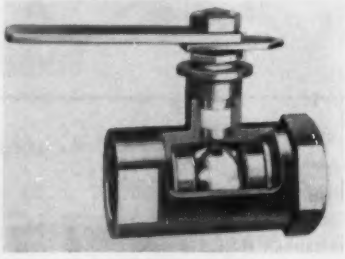
New products

Portable gas burner to be used in research and testing

Circle 7 on Readers' Service Card

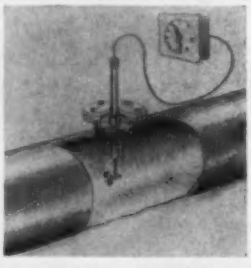
A new gas-fired infra-red burner has been designed for use in research and testing of low-temperature industrial infra-red process applications. Self-contained tank of LPG supplies the new unit continuously for two hours (GEC 080). Bryant Industrial Corp.



New line of ball valves handles all fluids

Circle 8 on Readers' Service Card

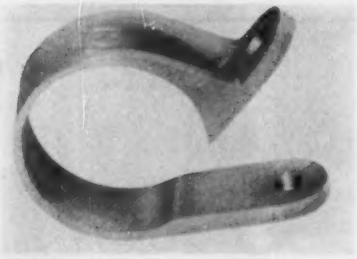
The new line of ball valves comes in combinations of metals, with seats and seals to handle practically any fluid (GEC 820). The valves range in size from ¼ to 2½ in. for pressures up to 400 lbs and temperatures at 450. Homestead Co.



Improved flow transducer made for large pipelines

Circle 9 on Readers' Service Card

An improved version of the flow transducer has been developed for accurate and economical measurement of fluid flows in large pipelines. The "Mark V" meters any fluid. It can be used with pressures to 5000 psi (GEC 540). Ramapo Instrument Co.



Nylon clamp is impermeable to fuels

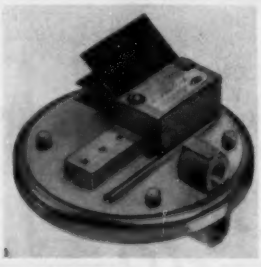
Circle 10 on Readers' Service Card

A new nylon clamp for use with hydraulic lines has recently been developed (GEC 370). The clamp, impermeable to nearly all corrosive liquids and fuels, ranges in size from ⅛ to 1¼ in. in diameter. Olympic Plastics Co., Inc.

Free-standing ranges stress cleanability, convenience

Circle 11 on Readers' Service Card

The new free-standing ranges (GEC 240), in 30-, 36-, 40-in sizes, stress cleanability, style, and convenience. Features include placement of controls on right side, flip-top controls that lie flat, "gourmet" shelf. Whirlpool Corp.



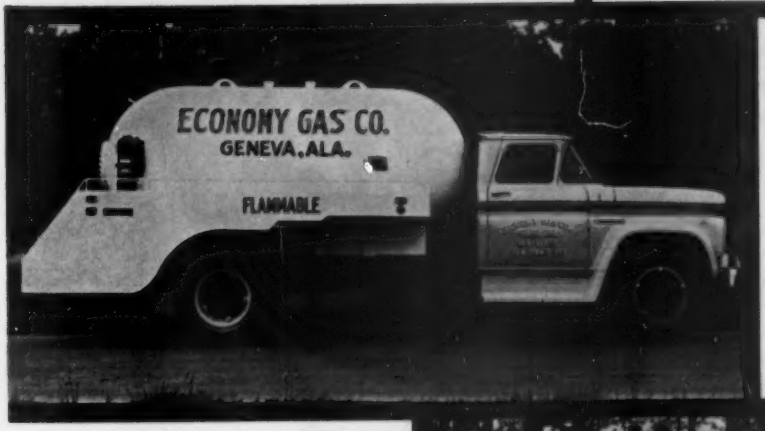
Differential pressure switch is compact

Circle 12 on Readers' Service Card

A new differential pressure switch, No. 1800 series, features compactness, low cost, and excel-

Mississippi Tank units are "far superior" say these proud owners

When it comes to good looks, economy of operation and dependability, there's nothing to compare with Mississippi Tank delivery units agree these progressive operators. And while they own different models, like all Mississippi Tank units both are designed with one thought in mind: to help LP Gas dealers cut delivery expense. May we suggest you take a cue from these cost-conscious companies? Investigate the money-making possibilities of high-capacity, trouble-free Mississippi Tank equipment today!



"Our Mississippi Tank Atlas is the finest delivery unit we have ever owned," says Sid Latimer, partner in Economy Gas Company, Geneva, Alabama. "It delivers as much gas as both our other delivery units combined. In addition, the unit is 'honest built'. By that I mean quality materials and skillful workmanship are used throughout which give the Atlas outstanding strength and stamina."

"Based on the excellent performance of our Titan, Jr., we will definitely buy another Mississippi Tank unit the next time we expand our fleet," reports Paul Ulivi, owner of Ulivi Gas Company of Coal City, Ill. Mr. Ulivi says that the new Titan, Jr., carries about 20% more payload than his old-type equipment, with resulting savings in truck fuel, time and labor.

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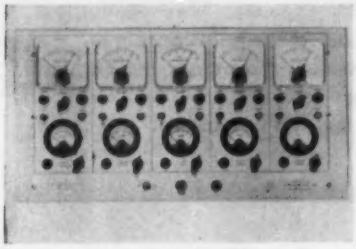
lent sensitivity (GEC 200). The unit can be applied for accurate, low pressure sensing and control such as in cooling coil defrost control, dust collection systems, air filters, air curtain systems, etc. F. W. Dwyer Mfg. Co.

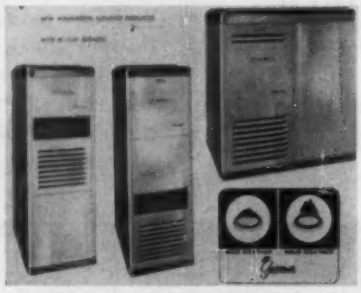


Gas detector alarms for hazardous combustible gases

Circle 13 on Readers' Service Card

Model 520 gas detector provides a central control housing for multi-point monitoring of hazardous, combustible gases at varying locations. The sensing elements, located at the desired points of areas, are connected to the central unit by cables which can be up to 1500 ft long.

Should the gas concentration exceed a safe value, both alarm and shut-down circuitry is triggered. Indication is read in terms of percent of lower explosion limit of hazardous gas (GEC 710). Houston Instrument Corp.



Furnace features 2-stage burner, dual control

Circle 14 on Readers' Service Card

The new "Gasaver" furnace features a two-stage burner, dual thermostats, and complete automatic controls. In cold weather the outdoor thermostat operates at full capacity, in milder weather output is reduced eliminating overrun of fuel (GEC 420). Williamson Co.

The built-in margin of safety....

Roney Reusable Hose Couplings

...designed specifically for the requirements of L-P gas.

The Roney #4100 Series:
Neat and compact, easily installed in the shop without extra tools. Designed for use with fabric braid hose, these steel fittings are cadmium plated and irridited for corrosion resistance.

Stock No.	Thread Size	Hose I.D.	Approx. Hose O.D.
4100-6	⅜" male	⅜"	¾"
4100-8	½" male	½"	15/16"
4100-12	¾" male	¾"	1¼"
4100-16	1" male	1"	1½"

The Roney #3162 Series:
These clamp couplings are easily installed in the field using only a wrench. Safe, compact and rugged, these couplings are cast from ductile iron, protected with corrosion resistant paint.

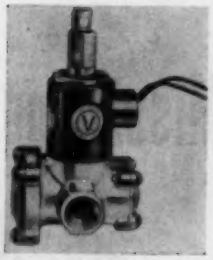
Stock No.	Male Thread Size	Hose I.D.	Approx. Hose O.D.
3162-8	½"	½"	15/16"
3162-12	¾"	¾"	1¼"
3162-16	1"	1"	1½"
3162-20	1¼"	1¼"	2"
3162-24	1½"	1½"	2⅛"
3162-32	2"	2"	2¾"
3162-48	3"	3"	3¾"

For larger transfer hose, the 3162 series is also available with a female Acme nut. The Acme nut provides a safer connection for L-P gas than quick throw cam type couplings. It allows pressure to be bled from hose slowly and it cannot be accidentally disconnected.

Stock No.	FE. Acme Thread	Hose I.D.	Approx. Hose O.D.
3162-32FS	3¼"-6	2"	2¾"
3162-48FS	4¼"-4	3"	3¾"

Roney maintains large inventories and can make immediate shipment out of stock in any quantity and all sizes. Every Roney product is manufactured to the highest standards of workmanship and material.

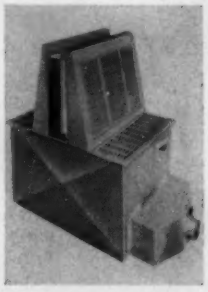
Roney, Inc. 105 Cole Street, Dallas 7, Texas



3-way explosion-proof valves announced

Circle 15 on Readers' Service Card

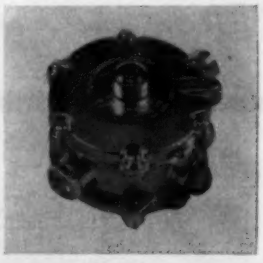
Explosion-proof solenoid valves (GEC 820), for use in Class I Group D atmospheres, are available in operating pressure differentials of five to 150 psi. They have one-half inch main orifice and one-half inch NPTF. Skinner Electric.



Floor furnace available in 10 compact models

Circle 16 on Readers' Service Card

The "Desert Sun" floor furnace is now available in 10 different styles (GEC 420). Performance is assured by gas-tight construction, efficient venting of combustion fumes, and safety-lock burner controls. The furnace can be used with LPG. Bastian-Morley.



Two-stage LPG regulator made for small engines

Circle 17 on Readers' Service Card

A new two-stage LPG regulator has been produced for vapor system application in air-cooled engines (GEC 100). It combines both primary and final stage regulation in one compact unit. Zenith Carburetor.

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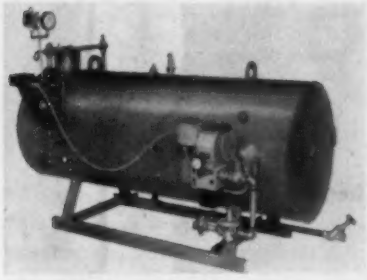
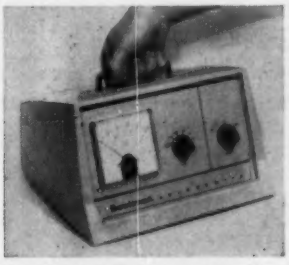


Side burner on boiler saves floor space

Circle 18 on Readers' Service Card

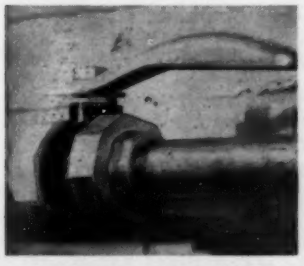
A new line of compact boilers featuring a new side-fired design has been produced. The side burner (GEC 410) saves floor space more than 20 per cent over end-fired models of the same capacity. Mounting the burner at the side reduces over-all length and makes new boilers more compact. Eclipse Boiler Division.



Portable meter developed to measure gas moisture

Circle 19 on Readers' Service Card

The new portable meter has been developed to measure trace quantities of moisture in gas. The meter monitors water vapor in ppm ranges of 0-10, 0-30, 0-100, 0-300, and 0-1000, with accuracy of plus or minus 5 per cent of full scale (GEC 540). Beckman.



New ball valve is designed to control flow of gas

Circle 20 on Readers' Service Card

Engineered for rapid installation and fast disassembly for mainte-

Be sure of your future with PURE

Because PURE brings you benefits that pay off in satisfied customers for your own brand of LP-Gas, you can be sure of a prosperous and profitable future. With PURE . . .

- **You buy direct from a major producer.**
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QUICKLY DIGS A NEAT TRENCH 3" WIDE UP TO 32" DEEP AT 1 TO 10 FEET PER MINUTE

OUTSTANDING IN EVERY DURABLE DETAIL

- ★ Weighs only 245 pounds
- ★ Welded steel boom elevates to vertical
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- ★ Heavy-duty 4 h.p. engine
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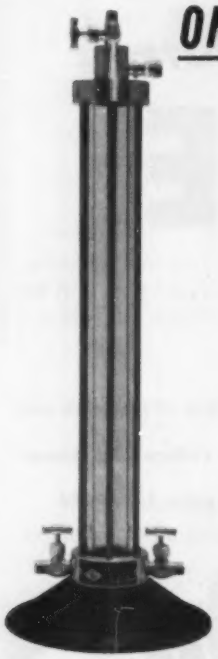
- ★ Trenches up to 10 feet per minute

Here, at last, is the modern, practical solution to your trenching problems. The little but mighty DIGZ-ALL Trencher is a portable machine that quickly, neatly and economically "opens up the earth" to a depth of 32 inches for the laying of wires, cables or pipes and many other jobs. It's a one-man operation that saves time and money and practically eliminates "digging-up-the-yard" complaints. Cost of the DIGZ-ALL Trencher is far less than you'd expect. Maintenance and operating costs are also exceptionally low. The DIGZ-ALL Trencher is a "natural" and a "must" for any company that does trenching.

For additional information write to:
WIND-KING MANUFACTURING CO. MERRILL, IOWA



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LPG GAS HYDROMETER

WHICH MEETS NGAA SPECIFICATION 2140

This hydrometer is used to determine the specific gravity of LPG under pressure. It must not only resist breakage from pressure, but must be corrected to compensate for the pressure effect on specific gravity. It is the only hydrometer which meets NGAA specifications for accuracy.

Catalog No.26-50, hydrometer. Combined form, specific gravity range: 0.500 to 0.650. Thermometer range: 30° to 90° F. in 1° intervals. Double-scale.

Catalog No. 26-40, pressure hydrometer cylinder. 200 p.s.i.

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nance, this new ball valve is designed to control flow of liquid or gas. Improvements are in sealing characteristics, compact forging, and built-in union ends (GEC 820). Clayton Marks.

FREE LITERATURE

Regulators bulletin

Circle 21 on Readers' Service Card

A newly revised 12-page bulletin describing "1001" regulators for the gas industry is now available (GEC 700). The bulletin includes installation photographs and cross sectional views of the regulators. Rockwell Co.

"How to Manage Yourself"

Circle 22 on Readers' Service Card

To help executives make the fullest use of their abilities, talent and training, a book, "How to Manage Yourself," has been published in 16 chapters (GEC 450). Cities Service Co.

Gas boiler described

Circle 23 on Readers' Service Card

A brochure on wall-type gas boilers for hydronic home heating has been published (GEC 420). The booklet describes how the boiler mounts on the wall to save valuable floor space. Ascot Gas Water Heaters, Inc.

Brochure on gas measurement

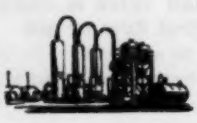
Circle 24 on Readers' Service Card

New literature describes a recently restyled thermeter and calorimixer line of gas measuring equipment (GEC 540). A descriptive brochure covering the firm's recently acquired caloroptic line of equipment is also available. Cutler-Hammer Inc.

16-page building catalog

Circle 25 on Readers' Service Card

A line of permanent pre-engineered metal buildings has been described in a 16-page catalog with illustrated table of contents. Charts are included giving detailed specifications of the company's four building lines (GEC 060). Parkersburg Rig and Reel.



LPG in Japan

"A revolutionary fuel," LPG is becoming increasingly important in Japan, according to a bulletin from its consulate general.

Until recently, all gas used in Japan was manufactured. While the cost to the consumer has been fantastically high, the companies have had a hard time showing a profit. One solution, underground storage, is still in the planning stage. LPG has proved a more immediate answer.

"The first firms to utilize LPG," says the bulletin, "were oxygen-producing companies which had long experience in the production of high pressure gas. They began selling natural propane gas in bombs to households and made considerable profit. Following these firms were the oil, coal, and gas companies."

In February, 1960, the Tokyo Gas Co. established a subsidiary, Tokyo Liquefied Gas Co. Ltd., "to provide LPG to households in Tokyo as well as to suburban areas in bombs." The subsidiary is also considering mixing LPG with manufactured gas for distribution through the city's mains.

Today, only 15 per cent of all Japanese homes enjoy gas service. In the cities, the saturation goes up to 50 per cent.

The latest available production figures show that 207,500 tons of LPG were produced in 1959. The country's LPG production capacity is rated at 500,000 tons.

A recent survey by the Development Bank of Japan indicated that demand would increase nearly four-fold by 1962—to 940,000 tons. Included in this figure are: household and general industrial fuel, 220,000 tons; city gas, 490,000 tons; and petrochemicals, 230,000 tons.

Obviously, imports are the answer. By the time this appears in print, Japan may have as many as four LPG and liquid methane tankers in service. ■

You Know It's So...You've Seen It Grow

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DIVISION OF THERMO-DYNAMICS, Inc.

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WEED CONTROL

BUILDS PROFITS THREE WAYS!

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3 Sounder year 'round operation

Since Thermo-Shock . . . weed control by LP-Gas flaming . . . was first introduced by Agri-Quip more than 10 years ago, it has grown steadily each year. Flaming is an accepted and recognized method . . . a method that has provided a source of profit for dealers from coast-to-coast and border-to-border. Pioneered primarily as an economical means of clearing weeds, Agri-Quip flamers, today, find hundreds of applications in agriculture and industry . . . and each helps to build the load.

By helping to build up the summer load, Agri-Quip flamers have not only increased gas sales, but have made the over-all dealer operation more sound, more economical, more profitable. In many instances, the summer load now exceeds winter demands . . . something that was not believed possible until Agri-Quip introduced Thermo-Shock weed control. Flaming creates a load "beyond the main" . . . a steady-building load outside the service area of natural gas. And, of course, the sale of Agri-Quip flaming equipment has added extra profits.

YOU CAN BUILD PROFITS, TOO

. . . because weeds are a problem in your market just as they are in every market . . . and Agri-Quip flamers are the answer.

WEED FLAMING EASY TO SELL

You do not have to create a need for Agri-Quip flamers, it already exists! Many of your present customers are potential buyers of flaming equipment . . . you have a ready-made market.

Weeds are a liability to any farm, and every farmer is interested in knowing how he can stop weeds from robbing his crops of needed water and plant nutrients. Weeds cost . . . every farmer knows this . . . all you have to do is prove that Thermo-Shock is effective and economical. And the way to prove it is by demonstration. Agri-Quip flamers will sell themselves if given this chance. National advertising is carrying the Thermo-Shock story to your customers.

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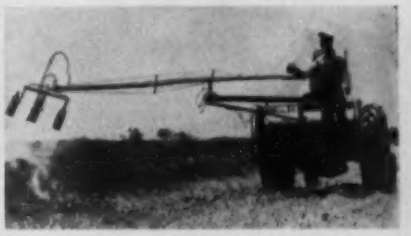

. . . a moderately priced mobile weed flamer, economical to operate and big enough to handle the weed control problem of any farm. It's ready to go any time, making it possible to sandwich weed flaming between other jobs requiring the use of the tractor.

- Burns 60-75 g.p.h.
- Fits any tractor
- Flames swath 4-8 ft. wide
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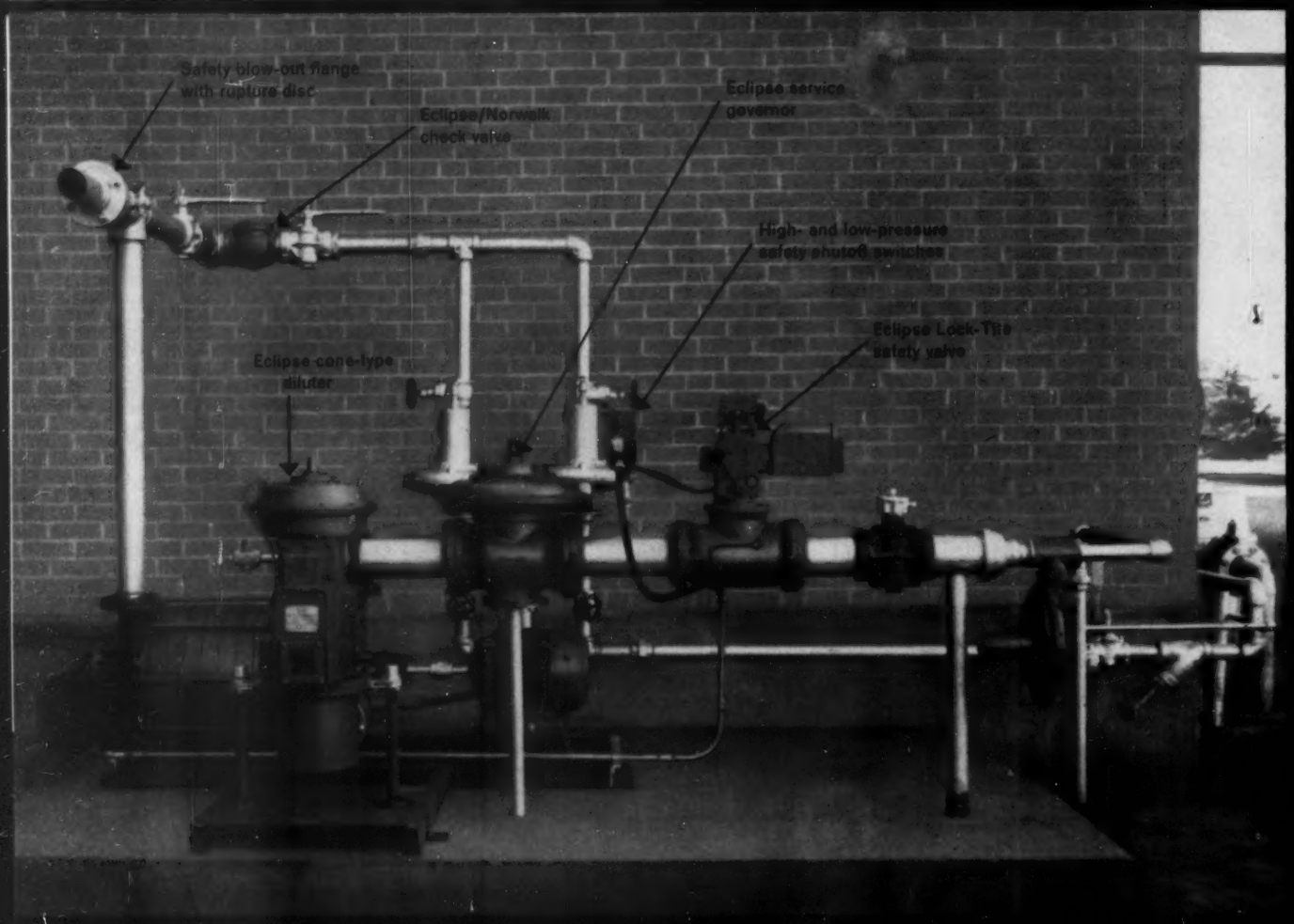
Safety blow-out flange with rupture disc
Eclipse/Norwalk check valve
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High- and low-pressure safety shutoff switches
Eclipse Lock-Tite safety valve
Eclipse cone-type diluter

Picture of an ultra-reliable LP gas standby system

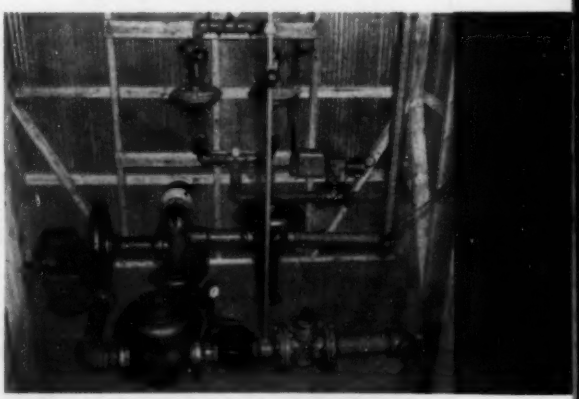
This Eclipse-engineered LP gas standby system is installed at American Bakeries Company, Rocky Mount, N.C., one of nine American bakery plants with similar installations.

Outstanding feature of this safe, reliable system is the Eclipse cone-type diluter which automatically premixes LP gas and air to the correct dilution ratio so that the LP gas can be used as standby for natural gas service.

The system illustrated has a capacity of 8000 cfh of 1400 Btu propane-air mixture. The mixture is discharged to the plant at 5 psig, the same distribution pressure as the regular natural gas.

Wherever you have requirements for LP gas standby service, your local Eclipse representative, backed by factory engineers, will provide design assistance for a safe, automatic ultra-reliable system incorporating the most advanced components available anywhere. Write for complete details.

Eclipse LP gas standby systems are available for any requirements up to 140,000 cfh. Illustrated below is a smaller system of 1500 cfh capacity with Eclipse diluter valve, gas booster, and pressure control equipment.



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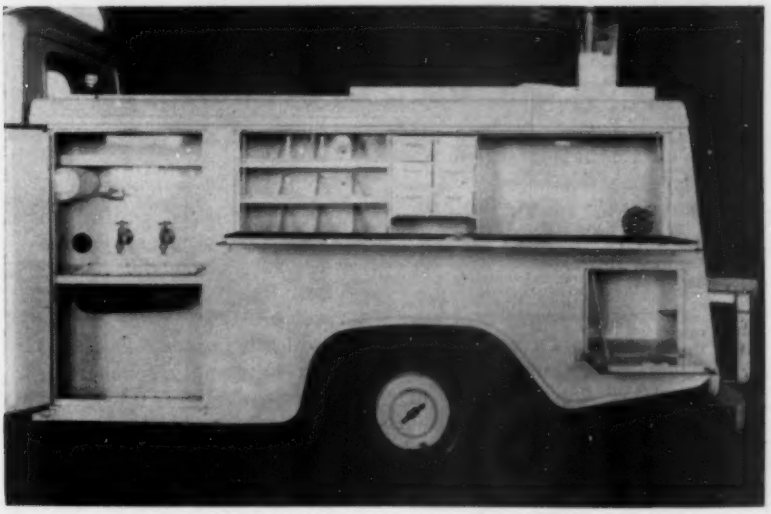

The right side of this LPG truck contains a wash basin and compartments. The compression-type faucets have quick-coupling hose connections.

A veterinarian's best friend is his LPG truck

J. ARTHUR THOMPSON

WHEN HE GOES TO CALL ON HIS ANIMAL PATIENTS, the veterinarian can now take along an adequately equipped laboratory and office that is completely serviced by L.P. gas.

The truck illustrated was recently completed by the Winter-Weiss Co. of Denver. The service body is a basic McCabe Powers body and is mounted on a half ton, long wheel base, Chevrolet truck.

Over all the truck body is 90 in. long by 72 in. wide. The top slides back for easy access to the interior area. Inside the body proper, there is approximately 32 cu. ft. of clear space where bulky objects may be carried or, if necessary, it will provide emergency ambulance space for a small animal.

Three compartments in each side, fitted with adjustable shelves and bins, provide ample space for instruments, medicines and records. Everything can be kept in an orderly fashion and ready for instant use.

Doors of the two large horizontal compartments let down to provide a work area. They are rubber-covered for ease of cleaning and protection of fragile items. Dome lights with individual switches in each compartment furnish illumination for working at the truck.

The service body is heated by an LPG circulating heater of 17,000 Btu output, which sends hot air through the vented compartments and keeps medicines and instruments warm.

In the rear of the truck is a 2-cu ft gas-operated refrigerator for serums or other items which must be maintained at low temperatures.

There is a hot and cold water system fed by gravity from a 40 gal fresh water tank fitted with an outside filler cap. Water is heated by a 4-gal capacity, LPG-fired, hot water heater. The wash-up sink in the left front compartment is of enameled steel and is fully equipped with soap dish, towel rack and compression type faucets having quick coupling hose connections. A 6-ft length of hose is also provided.

L.P. gas for heater, water heater and refrigerator comes from two 20-lb cylinders.

Similar veterinary trucks have been in use for some time. But some used the truck cooling system for heating the body or for heating water. In some cases electrical refrigeration was used, which worked either from the truck battery or by plugging into a house circuit.

This new, all-gas truck appears to have a number of advantages over the earlier models.

For one thing, it is not necessary to keep the motor running for either heat or hot water. If circumstances require, the unit may be left out of doors in very cold weather and the L.P. gas heater will prevent freezing in the compartments.

The L.P. gas water heater allows better control of water temperatures than most other systems.

The small gas refrigerator is fully automatic, has no moving parts to wear out or to be put out of running order by road jars and vibration. Neither is there any drain on the battery and you don't have to remember to plug the unit in when the truck is idle. ■

In the back of the truck rests the 2-cu ft gas-operated refrigerator for serums. Also shown in the photo are the hot water heater and space heater, both LPG-fired.

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Propane used in stationary engines is tax free

RESPONDING TO AN INQUIRY from the National Propane Corp., the Revenue Service has clarified the tax status of liquefied petroleum gases used as fuels in stationary engines. The Revenue Service published Rev. Rule 60-316 in IRB 1960-40, holding that a ready-mixed two-cycle engine fuel made from 80-octane gasoline and outboard motor oil is taxable as gasoline rather than as a special motor fuel. However, the mixture, when used for non-highway purposes, was held to be subject only to the net 2-cents per gal tax, rather than the 4-cents per gal tax normally applicable to gasoline. From the language of the ruling, National Propane Corp.'s representatives gathered the impression that a stationary engine which uses propane or other liquefied gases as fuel could obtain that fuel free of tax, and they requested a ruling. By letter ruling addressed to National Propane Corp., dated Jan. 25, 1961, bearing symbols T:R:Ex-SM:IWL, and signed by Bernard H. Fischgrund, Chief, Excise Tax Branch, the IRS has ruled as follows:

"This is in response to your letter of Oct. 10, 1960, requesting a clarification of Rev. Rule 60-316, Internal Revenue Bulletin No. 1960-40, 10, as it applies to a stationary gasoline engine used for generating electric power which is converted to the use of propane.

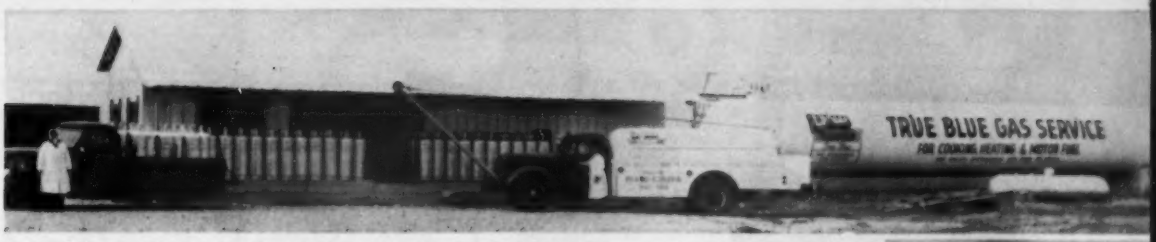
"You state that you have been under the impression if a special motor fuel is substituted for gasoline, the special motor fuel would be taxed at the same rate as the gasoline. However, in view of the provisions of Rev. Rule 60-316, it appears that in any case where an engine, other than a motor vehicle, motorboat or airplane, is converted from gasoline to propane, the user would be entitled to purchase the propane tax-free for use in such engine.

"Rev. Rule 60-316 holds that a ready-mixed two-cycle engine fuel which is produced by blending an 80-octane gasoline with outboard motor oil is considered to be a gasoline rather than a special motor fuel and as such is subject to manufacturers excise tax under section 4081 of the Internal Revenue Code. It further holds that under the provisions of Code section 6421-(a) the ultimate purchaser may obtain a payment of either 1 or 2 cents for each gallon of such fuel used for non-highway purposes depending on the rate of tax in effect on the date he purchased the gasoline.

"Under section 4081 of the Code, all products commonly or commercially known or sold as gasoline (including casinghead and natural gasoline) are subject to tax when sold by the producer or importer thereof or by any producer of gasoline, regardless of the type of engine used in.

"Propane which is classified as a special motor fuel is subject to the tax imposed under section 4141(b) of the Code when sold for use or used as a fuel for the propulsion of a motor vehicle, motorboat or airplane. However, no tax is applicable to sales of propane by the producer thereof direct for use in stationary engines.

"In the example cited, where a stationary engine used to generate electric power is converted from gasoline to propane, no tax would be applicable to the use of the propane for the operation of such engine since it is not a taxable use within the meaning of the law and regulations."—*Oil & Gas Taxes Report, Vol. II - No. 19, Feb. 20, 1961, published by Prentice-Hall.*



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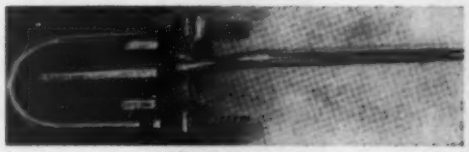
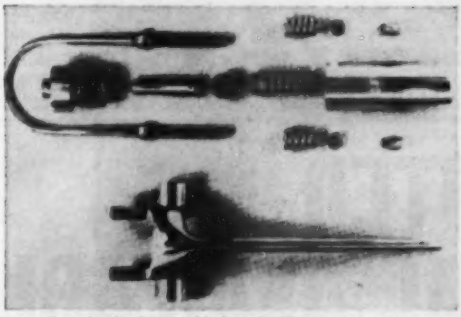
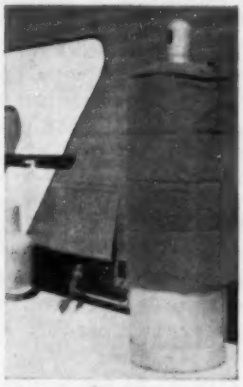


Ready for use.



Completely disassembled—only 15 separate parts.



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If you paint and fill cylinders the True Blue way you will have fun while you work

THE SPINNER PAINTER may be suspended from the ceiling or wall bracket with 1" pipe.

With handle held in a vertical position 2 curved hooks are placed in slots of the cap. The cylinders may be suspended equally well by placing the hooks under the valve wheel (cap removed).

When the handle is pulled down it automatically locks, holding the cylinder off the floor. The suspended container revolves freely on the ball bearing hanger in a spinning motion.

When the vessel is satisfactorily sprayed, very light pressure on the button releases the handle thereby allowing the cylinder to come to rest on the floor, simultaneously the hooks automatically release the cylinder, it is then ready to be rolled away.

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THE DEALER SPEAKS

Fork lift loads are a growing income producer, say dealers

Times change for everyone; and for the LPG dealer, changing times mean changing loads. With the ever-continuing expansion of the mains, many dealers near both large and small cities have had to look for something to replace the domestic customers they have lost. With reports of more and more dealers getting interested in fork-lift cerburetion, BPN surveyed a cross-section of 61 small-town and big-city dealers. Replies from 24 states added up to a 58 per cent reply, indicating exceptionally high dealer interest.

FORK LIFT CARBURETION has become a common load for most dealers; for some, it has become a substantial part of their business. Those two facts were clearly indicated by the BPN survey.

Of the 61 dealers contacted, 32 replied and 29 of the 32, or 90 per cent of the respondents, said they sell fuel for fork lift trucks. Even if all the others who did not reply do not sell fuel for fork lifts (which is hardly likely), more than 47 per cent of the total would still have a fork lift load.

Seven of the 29 dealers selling fork lift fuel report that it is a substantial part of their load. That's 24 per cent, an amazingly high figure, indicating that one out of every four or five dealers who goes in for this load really does a job on it.

What constitutes a substantial part of a dealer's load? One man thought 12 per cent of his gross income wasn't a substantial part, while another thought 10 per cent was. Twenty-one of the 29 dealers indicated what per cent of their total gross income is derived from fork lift carburetion. The figures ranged all the way from one dealer who reported a whopping 33 per cent (two others said 30 per cent) to three with ½ per cent. The average was over 8 per cent while the median was 3 per cent.

Nine dealers—28 per cent of the total—said they went into fork lift carburetion because they had lost a substantial part of their domestic load to natural gas. Seven of the nine said that fork lifts now constitute a substantial part of their load. The average percentage for these five was just over 20 per cent.

The fact that the fork lift load is a fairly recent development is clearly shown in the survey. The average dealer has been going after this load for just under five years. The earliest any responding dealer began selling fork lift fuel was 1953. One dealer just got into it

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AT NATIONAL L.P. GAS SHOW
APRIL 30—MAY 3

this year. Most dealers who have a good volume got started in 1955 or 1956. And every single one had been in the L. P. gas business for some time before he went after the fork lifts.

How about conversions? Fifty-six per cent of the dealers who sell fork lift fuel make their own. And 55 per cent of those who don't, have some sort of arrangement with an outside firm to handle them on the dealer's behalf. A few dealers who neither make conversions nor make arrangements for conversions indicate that neither is necessary because all propane fork lifts in their area are factory-equipped.

Most of the dealers had some comments to make, many of them quite extensive.

One thing readily apparent was that the fork lift business is limited primarily to larger cities. This was not only clearly indicated by rural and small town dealers, but also by a representative of one of the biggest marketers, Petrolane Gas Service of Long Beach, Calif. Said Petrolane's Charles Weiss:

"Basically our major markets for fork lifts up until now have been the large cities, such as the Long Beach-Los Angeles area and the Seattle area. For example, the Van Nuys district in Los Angeles has about 30 fork lift accounts. San Diego is just getting started, but things look pretty good there. Fork lift carburetion is definitely on the increase and in the next several years will become a substantial part of our business, but mainly in large cities. This, of course, is due to the fact that in small towns, the largest warehouse may only have one fork lift."

Weiss' statement is backed up by Frances Holliday of Cumberland Natural Gas Service, Tateville, Ky.:

"Our company is in a mountainous area so the opportunities for this type of business are not as great. However, in and near the larger cities of Ashland, Lexington, and Louisville, the fork lift load has become very valuable to several dealers. I note that, usually, only one dealer in a locality seems to concentrate on this load. And when he does, his percentage of the business goes up."

Two midwestern dealers indicate how well LPG is doing in the fork

Safety hints

In case a hose valve is accidentally opened, a plug in the end of the outlet will prevent escape of the product. Also, should the hose be unintentionally dragged along the ground, the plug will prevent dirt from getting in the valve.

Another safety device that is wise to use is a seal cap with evertite coupling which fits on the filler connection of the tank truck. This blocks the flow in case the handle should be bumped when the valve is accidentally left wide open.

lift field in their area. Said Gale Colburn of Munn & Cassaday Co., a Des Moines, Ia., dealer which gets one-fifth of its business from fork lifts:

"All of the major industry in Des Moines has converted its fork lift trucks to propane. We look for a continually expanding market although most of the increase will have to come from industry growth."

Adds Charles W. Link of Lin-Gas Inc., Evansville, Ind.:

"Apparently 80 per cent of the fork lifts around here are now on LPG. When the change came, it came all at one time."

Besides living in a small town, some dealers have another market problem, as indicated by W. W. Gresham Jr., of Gresham Petroleum Co., Indianola, Miss.

"We are not in an industrial area and therefore do not have too much market for fork lift gas. Also, since we are in a warm climate, LPG's advantage of fumeless burning is not a big selling point because plants are open and ventilated. However, if we get more and larger industries, it will probably be a better market for us."

Gresham's hope for a bigger load is echoed by Ernie Knutzen of Golden Gas Co., Golden, Colo.:

"We are limited in industrial load in this area. However, since the industrial park at our new Jefferson County Air Port has been completed, we are looking forward to more of this type of load."

One possible way to get some fork lift load is to go after temporary or seasonal business, says E. C. Stuckey, Stuckey Gas & Appliances, Geneva, Ind.:

"We are in a rural area and do not have much opportunity for fork lift loads. However, we have sold the local cannery some gas for fork lifts they rented."

Some times the local fork lift dealer is helpful, as indicated by L. H. Parlett Jr., of The Arundel Gas Co., Edgewater, Md.:

"The area we serve is predominantly rural and residential with very few fork lifts of any type. The fork lift dealers here have been very cooperative in recommending LPG. They have been very influential in helping us get several customers. As more fork lifts are needed in the area, I feel a majority

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of them will be LPG units. We serve all of our fork lift customers on a cylinder-exchange basis. We retain ownership of the cylinders. Proper routing and standardization of cylinder type and size has been instrumental in making the business profitable to us. Neighboring dealers who serve the areas around Washington and Baltimore enjoy a very healthy high volume business from this source."

On the other hand, fork lift manufacturers were a big help to Marshall Perry of Ark Valley Gas Co., Inc., Sand Springs, Okla.:

"Early efforts to convert fork lifts were futile. However, as old ones were replaced, the manufacturer has done a good job of selling the many advantages of LPG over gasoline. This has resulted in a definite swing to LPG and has made the selling job much easier; we can now refer prospects to presently-satisfied customers. Our policy has been to let each deal stand on its own. We believe the extra cost of time, trouble, and sometimes 'free' equipment, is a good investment until the time when we can determine the full potential in this field, especially in our particular trade area."

Miss Holliday reports that she has received help from both a usual source—recommendations from satisfied customers—and from an unusual one—the competition:

"We started with one converted fork lift in one lumber yard. This yard now has four fork lifts on propane and two other lumber yards have bought LPG lift trucks on the recommendations of the first one. However, electrical engineers with whom I am personally acquainted tell me that they cannot compete for the fork lift business, if the distance the truck will be used is more than a few feet. One even set the limit at 50 ft. This man classified competition for fork lift truck business within factories as 'Rough competition when we have to sell against L.P. gas.' He had just lost the business at the General Electric plant in Louisville to an LPG firm. Also, many good mechanics in our area are really sold on LPG for fork lifts. The reason is that they took vocational school courses in LPG carburetion from an instructor who attended a carburetion school put on by the state association. Our company cooperated in staging it."

There have been problems, however. The biggest seems to be price cutting, since several dealers complained about it. Perhaps the strongest complaint was that of Thomas H. Quail of Bottled Gas Corp. of Wisconsin. With 12 per cent of his present load in fork lift carburetion, this Milwaukee dealer says:

"I'm disenchanted with the fork lift fuel business, but only because local LPG competition has brought the price of propane below a profitable level. This is an excellent continuing market, but it does require considerable investment in cylinders and delivery trucks. I expect our dollar, gallon, and percentage level to decline."

Who's at fault on the price-cutting? Clarence Habermehl of Fuelgas Co., Flint, Mich., blames the customers: "Dealing with factories and industrial concerns keeps the price too low. . . . Very little profits can be made because of the concerns we have to deal with."

Another price cutting situation is related by Forrest Fram of Framgas, Inc., Chagrin Falls, O.:

"In the last two years, we have had three competitors who are fighting for this business by cutting prices so low that there is not enough profit to support a salesman, good service, and the advertising necessary to do a good job. We

Each trouble-shooting truck of the Sarasota, Fla., General Telephone Co., carts a bottle of LPG for use in cabling operations where a soldering torch and source of heat are important.

have one competitor who was the low bidder and when the purchasing agent asked him if he could lower his price even more, he did. With conditions as they are at present, we are concentrating our efforts on domestic and commercial customers. We have held most of our old customers through good service. We believe things will change and these cut rates will disappear in the future. Then, we will go after the lift truck load."

Product quality is the problem Ralph A. Weaver of Weaver Gas, San Jose, Calif., is concerned about:

"One important thing — about which something is starting to be done and which must be followed up—is quality control of propane and butane by the major oil companies. To build and maintain a good fork lift carburetion load, it is essential to have a product that is free from sulphur and other harmful and problem-causing impurities. I think this is the responsibility of the major oil companies and dealers and the industry should insist on it."

A different kind of headache was outlined by Perry:

"One of our biggest problems in this area is to economically service the owner of one or two units. When we mention 'extra cylinders for stand-by,' 'pick-up and deliver charges,' or 'buy, rent, or lease bulk storage,' the customer wonders about the cost of our 'modern' fuel."

Generally, however, most dealers must have felt that any problems involved with the fork lift load were not worth mentioning. Those that have had at least some success with the market were optimistic and expected to increase their load considerably, whether or not they expect to suffer from advancement of the mains.

Not expecting to suffer from natural gas, for example, is Miss Holliday:

"Our experience is that one fork lift truck will equal the gross profit from an average of ten bottle gas customers. Generally, however, we do not believe fork lifts can take the place of the domestic load. We do believe that they are a part of a well-rounded LPG load."

Speaking for the more drastically-affected dealer, Weaver says:

"We feel that the future is very bright. There is a compensating factor for the dealer who is in a strong natural gas area. Industry will also be strong in that area, so the fork lift potential will be good."

Weaver should know whereof he speaks. Thirty per cent of his gross income is derived from fork lifts right now. ■

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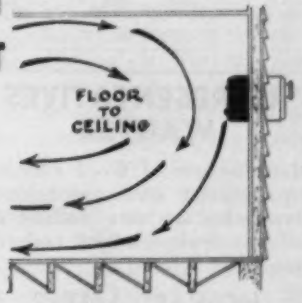

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NFPA No. 54, Standard for the Installation of Gas Appliances and Gas Piping, recommends in paragraph No. 2-9-11 that when an appliance is disconnected from an outlet and the outlet is not to be used again immediately it shall be securely closed gas-tight with a threaded cap or plug. Paragraph 1-2 states that installation and replacement of gas appliances shall be performed only by a qualified installing agency. *NFPA Fire News, January 1961.*

CALENDAR

All associations are invited to send in the dates of their forthcoming meetings

April 30-May 3—National LPGA Convention and Trade Show—Conrad Hilton Hotel, Chicago, Ill.

May 1-3—National Tank Truck Carriers 13th Annual Convention—Netherland Hilton Hotel, Cincinnati, Ohio.

May 10-11—Suburban Propane Utility—Gas Dealers' Convention—Wentworth-By-The-Sea, Portsmouth, N. H.

May 12—NGAA Permian Basin Regional Meeting — Lincoln Hotel, Odessa, Texas.

May 15-19—NFPA Annual Meeting—Statler Hotel, Detroit, Mich.

May 15-26—New York University's seminar on "Retailing for Petroleum Executives" — Washington Square Center, New York.

May 22-24—Kansas LPGA Gas Carburetion School—Manhattan, Kan.

May 25—Maryland LPGA Convention—Sheraton - Baltimore Inn, Baltimore, Md.

June 4-5—Butane-Propane Institute of Louisiana Annual Convention—Capitol House Hotel, Baton Rouge, La.

June 4-6—Missouri-Illinois L. P. Gas Exposition—Sheraton Jefferson Hotel, St. Louis, Mo.

June 4-9—Florida LPGA Service Conference—University of Florida, Gainsville, Fla.

June 5-8—Iowa LPG Engine School—Iowa State University, Ames, Iowa.

June 6-8—Northeast LPG Carburetion Clinic, Harrisburg, Pa.

June 11-12—Colorado LPGA Convention—Harvest House, Boulder, Colo.

June 21-22—L. P. Gas Training School—Purdue University, Lafayette, Indiana.

June 25-27—Montana and Wyoming LPGA Convention—Wort Hotel, Jackson, Wyo.

June 25-27—Minnesota LPGA Summer Convention—Grandview Lodge, Brainerd, Minn.

June 28-29—Michigan LPGA Convention — Blaney Park Resort, Blaney Park, Mich.

July 23-25—Kentucky LPGA Convention—Kentucky Hotel, Louisville, Ky.

August 6-8—New Mexico LPGA Convention—Western Skies Hotel, Albuquerque, N. M.

August 20-22 — Idaho-Nevada-Utah LPGA Convention—Newhouse Hotel, Salt Lake City, Utah.

August 24-26—Florida LPGA Annual Convention — Hotel Robert Meyer, Jacksonville, Fla.

Sept. 15-17—Iowa LPGA Convention—The New Inn—Lake Okoboji, Iowa.

Sept. 22-24—Wisconsin L.P. Gas Convention — Schwartz Hotel — Elkhart Lake, Wis.

Oct. 23-24—Minnesota LPGA Fall Convention—Hotel Lowry, St. Paul, Minn.

Nov. 13-15—American Petroleum Institute annual meeting—Conrad Hilton, Congress, and Palmer House Hotels, Chicago, Ill.

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Agri-Quip Div., Thermodynamics Corp. 115
American Bosch Arma Corp., American Bosch Div. 101
American Machine & Foundry Co. The J. B. Beaird Co., Subs. ... —
*American Meter Co., Inc. 97
Anchor Petroleum Div. Mobil Oil Co. 29
Anco Mfg. & Supply Co. 9
Arkla Air Conditioning Corp., Humphrey Div. 26
Ascot Gas Water Heaters, Inc... 121

Baso, Inc. 27
*Bastian-Blessing Co., Inc. 35
Beaird, The J. B. Co., Inc., Subs., American Machine & Foundry Co. ..... —
*Bendix Corp. Zenith Carburetor Div. 103
Blackmer Pump Co. 90
Blue, John, Co. ..... —
Brown Stove Co. 88
Bryant Mfg. Co. 57, 58
Burroughs Corp. 69

CEFCO Commercial Equip. Finance Corp. 120
Century Gas Equipment Marvel Schebler Prods. Div. Borg Warner Corp. 105
Chandler Engineering Co. 114
Chevrolet Motor Div. General Motors Corp. ..... —
*Cities Service Oil Co. 71
Coleman Co., Inc. ..... —
*Corken's, Inc. 15
Cylinders, Inc. 73

Day & Night Mfg. Co. 85
Dearborn Stove Co. 92
Dixon Valve & Coupling Co. ... —

Eclipse Fuel Engineering Co..... 116
Empire Stove Co. 67

Firestone Tire & Rubber Co. ..... —
*Fisher Governor Co. 11
Ford Motor Co. 42, 43

General Controls Corp. ..... —
General Motors Corp. Chevrolet Motor Div. ..... —
Griffiths, E. F. Co. 124
Grove Valve & Regulator Co. 33

Hamilton Manufacturing Co. 79
Hannay & Sons, Inc., Clifford B. —
Harper-Wyman Co. 93, 94
Heil-Quaker Corp. 12
Hidy-Brown Recorder Co. ..... —
*Hones, Chas. A., Inc. ..... —
Hydrotherm Inc. 8

Janitrol Heating & Air Cond. Div. Midland-Ross Corp. 75, 76

Locke Stove Co. 91
Lubbock Machine & Supply Co., Third Cover

Magic Chef Inc. 36
Martin Stamping & Stove Co. .. 45
Master Tank & Welding Co. 89
Mid-America Pipeline Co. 96
Midland-Ross Corp., Janitrol Heating & Air Cond. Div. 75, 76
Minneapolis-Honeywell Reg. Co. Water Heating Controls 24, 25
Mississippi Tank Co. 109
Mitchell, John E. Co. 37
Mobil Oil Co., Anchor Petroleum Div. 29
Motorola Comm. & Electronics, Inc. 83

*Neptune Meter Co. 30, 31
*North Texas Tank Co. 17, 18, 19, 20, 21, 22

Ohio Foundry & Mfg. Co. 118

Parkhill-Wade 105
*Pasley Mfg. & Dist. Co. 6
Phillips Petroleum Co. 5
Powell Co., Wm. ..... —
*Pressed Steel Tank Co. .. Second Cover
Pure Oil Co. 113

Radiator Specialty Co. ..... —
Richardson Gasoline Co., Sid. ... —
Ridge Tool Co. ..... —
Robertshaw-Fulton Controls Co. Thermostat Division 2
Rochester Gauges, Inc. 86
*Rockwell Mfg. Co. Gas Products Div. ....Fourth Cover
Roney, Inc. 110

Samuel Stamping & Enameling Co. 10
Sheffield Bronze Paint Corp. 44
Shell Oil Company 63
*Sinclair Oil & Gas Co. 13
Skelly Oil Co. 81
Smith, A. O. Corp. Permaglas Div. ..... —
*Smith Precision Products Co. 107
Spatz Paint Industries, Inc. ... 108, 122
*Sprague Meter Co. 125
Squibb-Taylor, Inc. 123
Suburban Appliance Corp. 125

Temco, Inc. 95
Texaco, Inc. 87
Thermodynamics Corp., Agriquip Div. 115
*Trinity Steel Co. 46
True Blue Oil Co. 119
Tube Manifold Corp. 98
Tuloma Gas Products Co. 39, 40

Union-Texas Natural Gas Corp... 1
United Petroleum Gas Co. 32

*Viking Pump Co. 84

*Warren Petroleum Corp. Front Cover
Weatherhead Co. 7
Wind-King Mfg. Co. 114

*Zenith Carburetor Div. Bendix Corp. 103

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